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VOLUME VI NUMBER 11

COLLEGE OF ARTS AND SCIENCES

ANNOUNCEMENT OF THE DEPARTMENT OF CHEMISTRY

MAY 15, 1915
PUBLISHED BY CORNELL UNIVERSITY
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South Hall

MORSE HALL—THE CHEMICAL LABORATORY

North Hall

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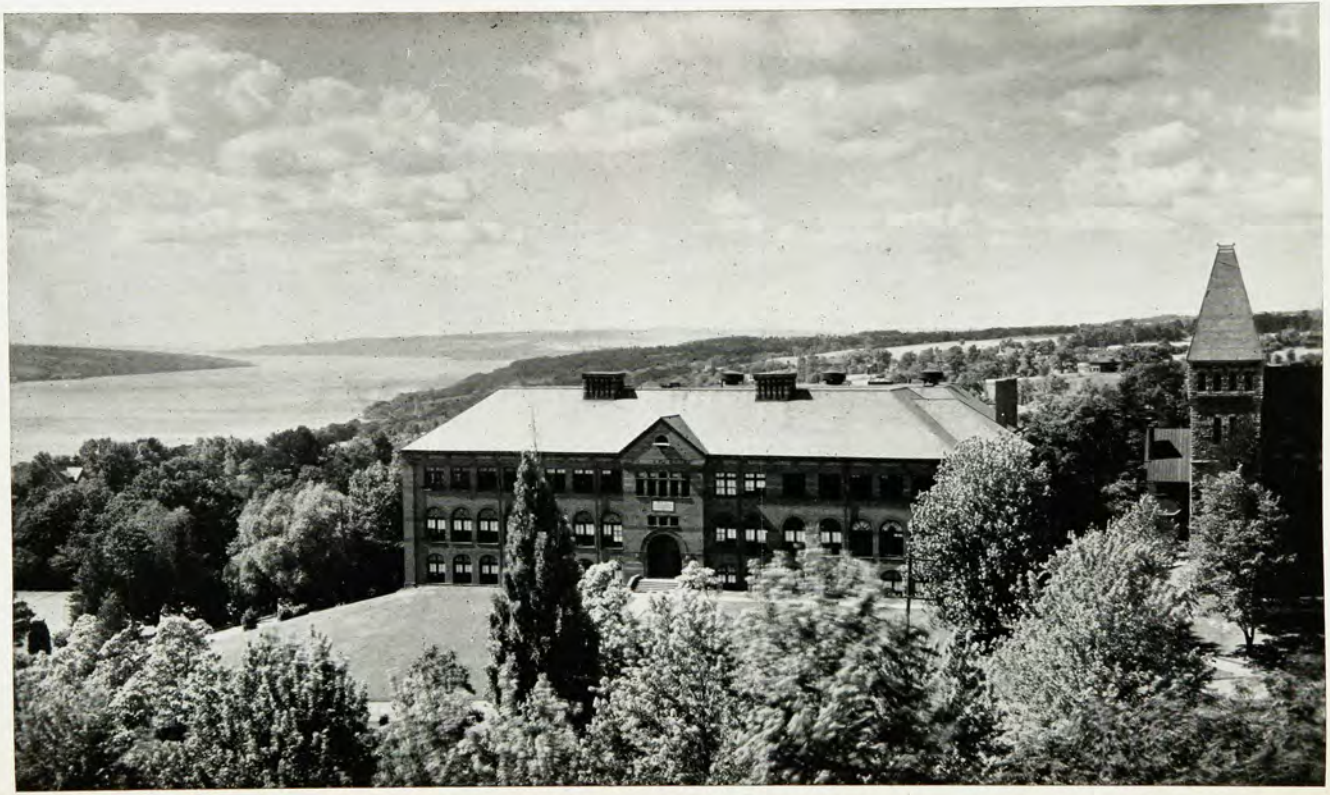

MORSE HALL WITH CAYUGA LAKE IN BACKGROUND

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South Hall

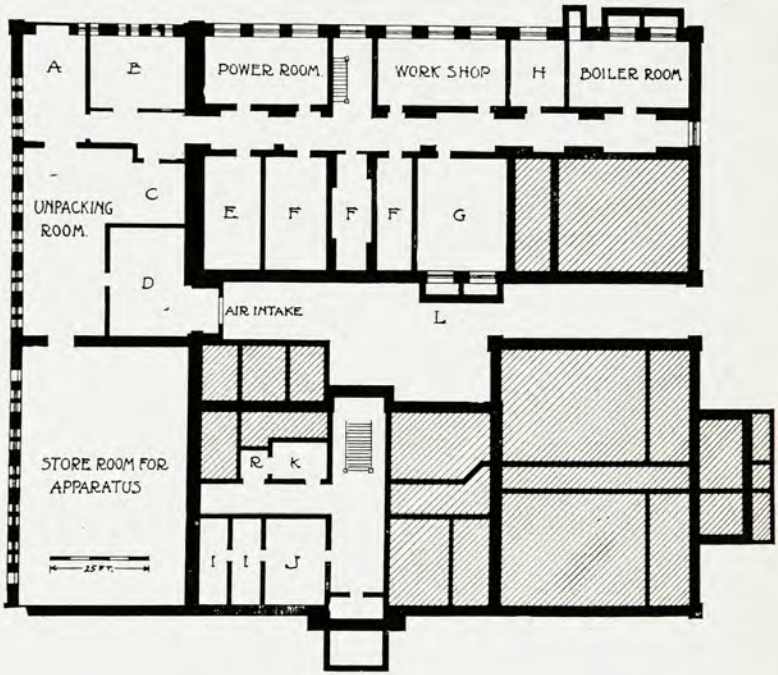
North Hall

MORSE HALL FROM NORTHEAST

GENERAL EQUIPMENT AND METHODS OF INSTRUCTION

The Chemical Laboratories

The chemical laboratories, Morse Hall, contain a floor space of over 90,000 square feet. They are provided with four lecture rooms, one seating three hundred and ninety students, another eighty, and each of the others sixty-two, and also with four recitation rooms. The lecture rooms are furnished with all necessary appliances for the illustration of lectures by experiment and by lantern projection, and are provided with adjacent preparation rooms. For elementary work in inorganic chemistry and in qualitative and quantitative analysis, there are three large laboratories containing in the aggregate places for twelve hundred and eighty students working in sections. In addition to these are four rooms for organic chemistry and a research laboratory for advanced work in that field, a special laboratory for microchemical analysis, one for water and food analysis, together with a large research laboratory, a special museum, two incubator rooms, and one sterilizer room, three rooms for assaying, two with northern exposure for gas analysis, a fireproof room for work with highly inflammable substances, a laboratory for organic ultimate analysis by combustion provided with powerful ventilation and with special balances, a hydrogen sulphide room connected with strong fan exhaust for work with noxious gases, an electric furnace laboratory, two large rooms for advanced inorganic chemistry, together with two smaller ones for research in this field, a room for spectroscopic chemical analysis with a photographic dark room and a mercury-pump room adjoining, a large laboratory for elementary work in physical chemistry, one for electrochemistry, one for undergraduate research, one for graduate work, and a large room for advanced work in agricultural chemistry. The student laboratories contain in the aggregate places for over nineteen hundred students working in sections, or eight hundred students working at once. In the sub-basement there is a constant temperature room, a dynamo room containing motors and a high pressure blower for air blast, a room for the storage of ores, two others for the storage of highly inflammable chemicals, and a number of stock rooms. Three general supply rooms, from which all students draw the chemicals and apparatus for use in their work, are centrally located in the building, one above another, and connected



Morse Hall--Plan of First Floor

(Shaded areas unexcavated)

A Freight Room
B Electric Furnace Room
C Carboy Room
D Blower Room, containing machinery for ventilation of large laboratories
E Constant Temperature Room
F Store Room for Chemicals
G Blower Room, containing machinery for heating and ventilation of the north wing of the laboratory
H Grinding Room
I Store Rooms for Bottles
J Store Room for Iron Ware
K Elevator Motor Room
L Air Intake
R Freight Elevator

by means of a freight elevator. There are sixteen private laboratories for professors and instructors. The laboratory of the Agricultural Experiment Station is also situated in Morse Hall. Distilled water is conducted in block tin pipes to all of the more important rooms on each floor from tin-lined tanks in the upper story. Air blast is conducted wherever required from a high pressure blower in the basement. The buildings are supplied with an alternating current of 2200 volts and with two direct currents of 500 and 110 volts. Lighter currents for electrochemical analysis and synthesis are furnished by storage batteries. With the aid of a motor generator, low voltage direct currents up to 2000 amperes may be obtained. The buildings are lighted with gas and electricity, heated by steam, and thoroughly ventilated by forced draft. All working tables are provided with gas and water and most of them with blast and with suction pumps.

The Museum

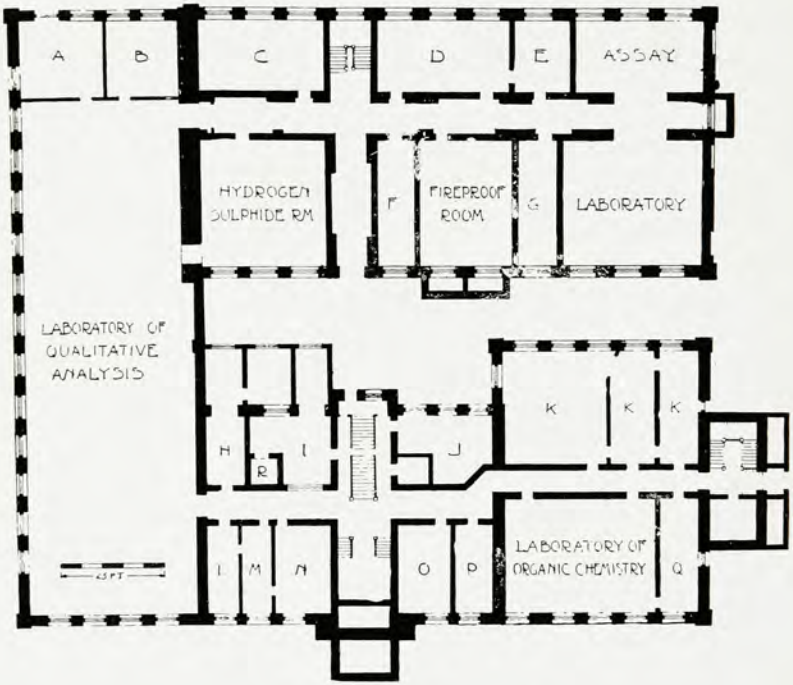
The Museum contains collections for the illustration of lectures upon inorganic, organic, sanitary, and applied chemistry. These collections include specimens of the elements, their compounds, and the ores from which they are obtained, a complete collection of the most important organic compounds, and also specimens illustrating the leading chemical industries, such as the manufacture of the various acids, alkalies and salts, pigments, glass, pottery, soap, stearine and glycerine, and the chemical processes of metallurgy, bleaching, dyeing, and photography.

The Department Library

The Department Library, which is centrally located in Morse Hall, contains complete sets of all of the more important journals and is very fully supplied with works of reference and with the standard books on chemistry and allied subjects. Such additions are made to it from year to year as are necessary to keep abreast of the times. It is accessible to all students, under such restrictions only as are necessary to secure it against injury or loss.

Introductory Inorganic Chemistry

The elements of inorganic chemistry are taught by lectures, laboratory work, and recitations from a textbook. The lectures deal with the fundamental theories and laws of chemistry, and with the more common elements and their compounds. They are profusely illustrated by experiments. In so far as is found practicable



Morse Hall--Plan of Second Floor

A Recitation Room C
B Recitation Room D
C Laboratory of Advanced Gas Analysis
D Laboratory of Gas Analysis
E Gas Storage Room
F Combustion Room
G Bullion Assay Laboratory
H Balance Room
I Stock Room No. 1
J Men's Lavatory
K Laboratory of Advanced Organic Chemistry
L Preparation Room
M Office of Instructor in Qualitative Analysis
N Private Laboratory
O Office of Professor of Organic Chemistry
P Balance Room
Q Office of Instructor in Organic Chemistry
R Freight Elevator

in an introductory course reference is made to important recent advances in the science, and in its industrial applications.

The laboratory work is designed not only to familiarize the student with the principles and facts of chemistry, but also to afford a thorough preliminary training in the construction and manipulation of laboratory apparatus. Students who have had a thorough high school course in chemistry are permitted to substitute a series of supplementary experiments for certain parts of the regular laboratory work. This supplementary course comprises instruction and practice in the principles of simple glass blowing, together with a large number of quantitative chemical experiments.

The recitations deal with the subject matter of the lectures and with the experimental work carried on in the laboratory. They also comprise thorough drill in the solving of chemical problems.

Advanced Inorganic Chemistry

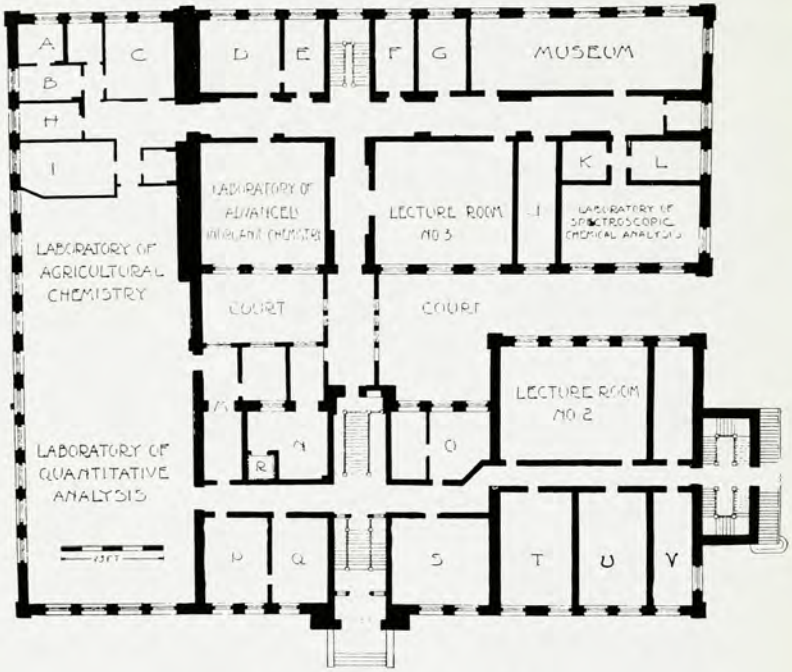
Three courses of lectures in advanced inorganic chemistry are offered. One of these courses, extending throughout the year, comprises a general survey of the field and deals with the chemistry of both the rare and the common elements. A second course covers selected topics in advanced inorganic chemistry, while a third, extending throughout one term, is concerned with the chemistry of gases.

Advanced laboratory work in inorganic chemistry is offered both for students that desire to acquaint themselves with the preparation and purification of inorganic compounds and with the extraction of the rare elements from ores and minerals, and for those who desire to pursue investigation in this branch of chemical science. The equipment for research is very complete, and excellent facilities are available for investigation in any branch of the field that the graduate student may desire to take up under the direction of the professors in charge.

Qualitative and Quantitative Analysis

Two beginning courses are given in chemical analysis. These vary in scope and length, and are designed to meet the different needs of the students of chemistry and engineering.

Qualitative analysis begins with the study of the reactions of the elements and their compounds with different reagents. This is followed by the practical application of the knowledge thus gained to the analysis of unknown substances both in the solid form and in solution. An advanced course in quali-



Morse Hall--Plan of Third Floor

A Private Laboratory
B Office of Professor of Agricultural Chemistry
C Agricultural Experiment Station
D Private Laboratory
E Office of Professor of Inorganic Chemistry
F Laboratory for Research in Inorganic Chemistry
G Office of Assistant Professor of Gas Analysis and Optico-chemical Methods
H Laboratory for Research in Agricultural Chemistry
I Laboratory of Advanced Agricultural Chemistry
J Preparation Room
K Dark Room
L Mercury-pump Room
M Balance Room
N Stock Room No. 2
O Women's Cloak Room
P Office of Head of Department
Q Department Office
R Freight Elevator
S Department Reading Room
T Department Library
U Office of Assistant Professor of Analytical Chemistry
V Laboratory of Electroanalysis

tative analysis is offered for those who may desire to receive further instruction or to carry out research work in this field.

The work in quantitative analysis comprises gravimetric and volumetric determinations together with the study of the chemistry of the operations involved. The work in the laboratory is supplemented by lectures and recitations, the latter including practice in writing chemical equations explanatory of the actual operation of analytical work.

For students intending to devote themselves chiefly to the study of chemistry an advanced course is provided in quantitative analysis, especially designed to give as wide an acquaintance as possible with analytical manipulation. This course comprises the determination of the more important elements; the analysis of ores, minerals, and alloys; the ultimate analysis of organic substances; the analysis of iron and steel, slags, paints and varnishes, coal and coke, and a number of other commercial products.

Advanced Quantitative Analysis

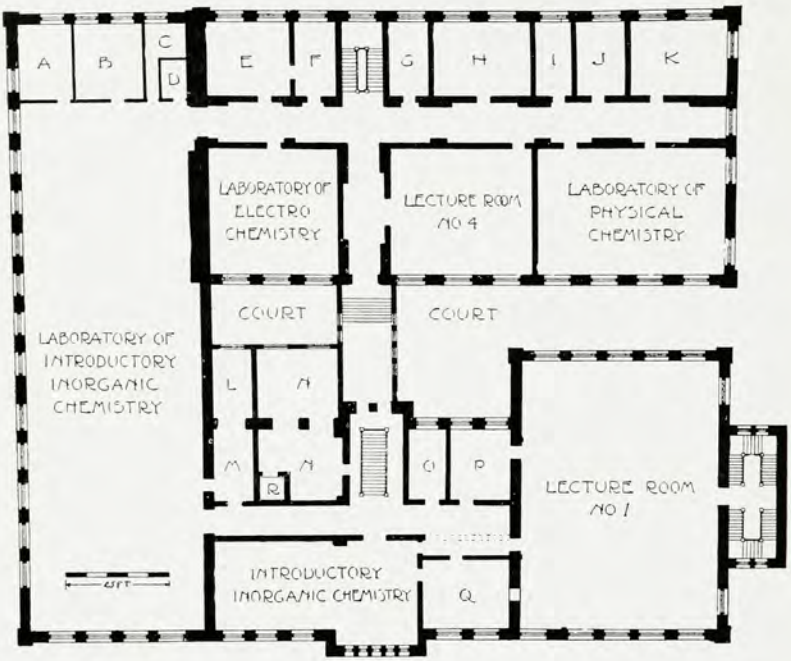
A course of lectures upon selected topics in advanced quantitative analysis, and a laboratory course in electrochemical analysis are also offered.

The instruction in assaying consists of lectures and laboratory practice. The lectures comprise a complete and detailed discussion of the theory and practice of the scorification, crucible, and wet assay. In the laboratory the student is given instruction in the scorification and crucible assay of silver and gold ores, mattes and bullion, and also in the wet assay of bullion and of the ores of copper, lead, and zinc.

Assaying

The work in opticochemical methods consists of lectures and laboratory practice. The lectures are devoted to a detailed discussion of the methods of optical analysis, especial attention being given to those methods involving the use of the spectroscope, colorimeter, polariscope, and refractometer. The laboratory work is intended to supplement the subject matter of the lectures and consists of practice in the manipulation of the above instruments in actual analyses. The spectroscopic laboratory is designed especially for optical work and the equipment includes the latest and most improved types of optical apparatus and accessories. Special opportunities are afforded for advanced work and research.

Optico-chemical Methods



Morse Hall--Plan of Fourth Floor

A Recitation Room A
B Recitation Room B
C Women's Lavatory
D Men's Lavatory
E Private Laboratory
F Office of Professor of Inorganic Chemistry
G Store Room
H Office of Assistant Professor of Physical Chemistry and Electrochemistry
I Balance Room
J Office of Professor of Physical Chemistry
K Private Laboratory
L Private Laboratory
M Office of Instructor in Introductory Inorganic Chemistry
N Stock Room No. 3
O Balance Room
P Preparation Room
Q Balance Room
R Freight Elevator

Gas Analysis

Lecture courses and laboratory courses are given in gas analysis and the subject taken up both from a scientific and from a technical standpoint. Within certain limits the regularly outlined laboratory courses may be modified to meet the needs of the individual student. The laboratories devoted exclusively to the analysis of gases are provided with a large collection of the standard forms of gas apparatus and special apparatus, and afford exceptional opportunities for advanced work and research.

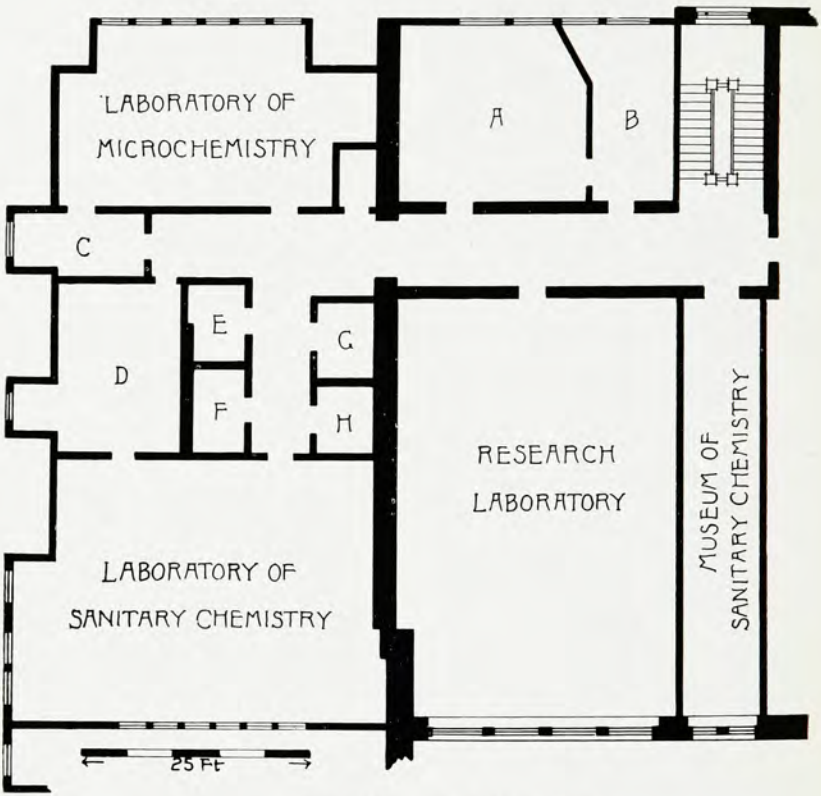
Chemical Microscopy

An elementary course dealing with microchemical methods and planned to meet the needs of students specializing in chemistry serves as an introduction to more advanced courses in inorganic and organic qualitative micro-analysis and the microscopy of foods and water.

The course in microchemical methods deals with the application of the microscope and its accessories to the solution of problems arising in chemical practice. The laboratory for microchemical analysis includes a grinding room for the preparation of material for metallographic study, and besides student microscopes, is equipped with crystallographic, photographic, and projection microscopes and with a complete ultramicroscope outfit for the study of solids and liquids.

Organic Chemistry

Two elementary courses are given in organic chemistry, one extending throughout the year, the other throughout the first half-year. The shorter course is intended for and required of students in medicine and is specially adapted to their needs. It may also be taken by other students who have had courses in inorganic chemistry and qualitative and quantitative analysis. The longer course is for students specializing in chemistry or for those who wish a more extended knowledge of the subject. The method of instruction is the same in both courses and consists of lectures, written reviews, and laboratory work. The lectures are fully illustrated by experiments, by specimens of the compounds considered, and by charts. Students are required to take careful notes on these lectures, and written reviews on the lectures and laboratory work are given every week. The laboratory work follows the lectures closely and comprises the preparation and purification of a large number of typical organic compounds and



Morse Hall--Plan of Fifth Floor

A Private Laboratory
B Office of Professor of Sanitary Chemistry
C Grinding Room
D Office of Instructor in Sanitary Chemistry
E Sterilizing Room
F Balance Room
G Incubator Room A
H Incubator Room B

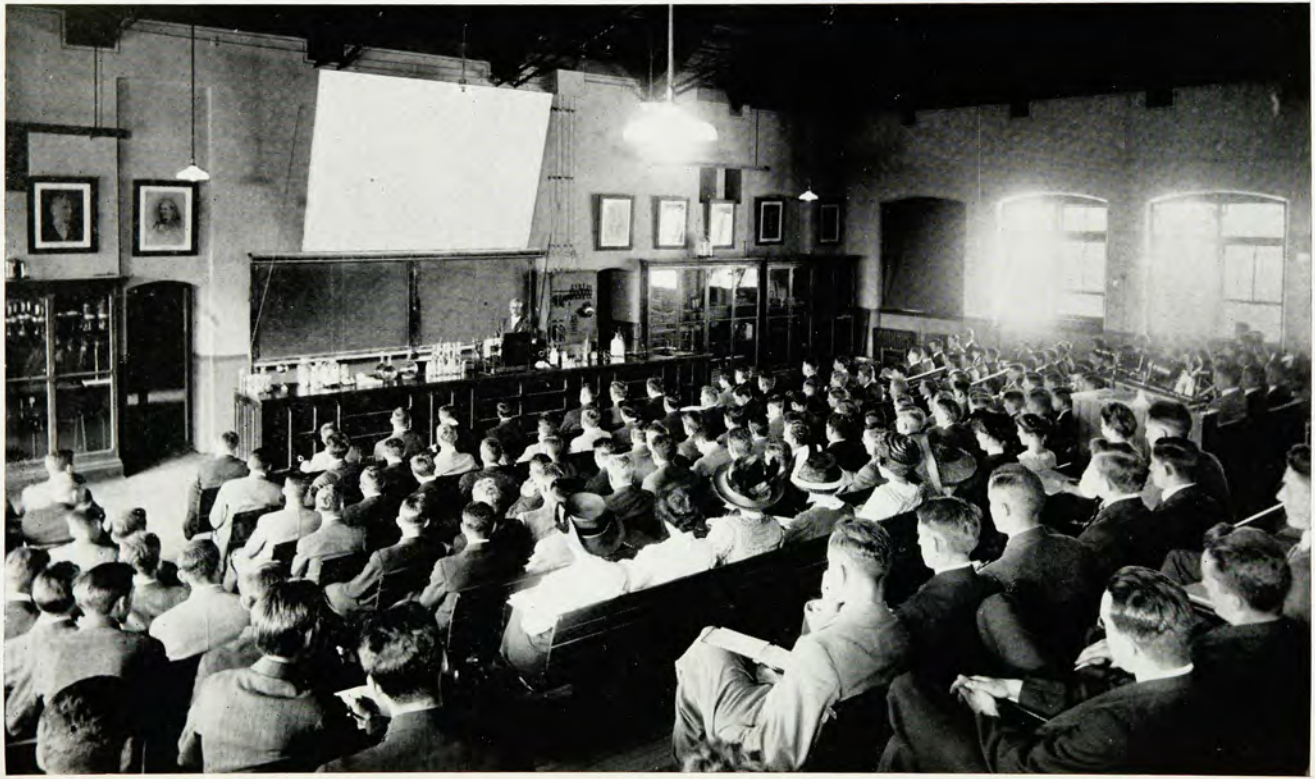
the detailed study of their properties, reactions, and relations. The detection of different elements in organic compounds, and the recognition of various groups or radicals is also included in the laboratory work. The second year's work in organic chemistry consists of lectures on special chapters of the subject and of advanced laboratory work in the preparation and study of the more complicated compounds of carbon. Special courses of lectures are also given on the coal tar dyes and on the stereochemistry of the compounds of carbon and nitrogen. In all the advanced works constant reference is made to the original literature of the subject in the various chemical journals so as to familiarize the students with the classical investigations of the science. A course on the methods of organic analysis is also given in which the qualitative and quantitative analysis of commercial products and of mixtures of organic substances is taken up.

Physical Chemistry

An outline of the more important features of the physical aspect of chemical change is given in an introductory course of lectures in physical chemistry. This course aims to give a systematic presentation of modern chemical theory and to serve as an introduction to the other courses in physical chemistry. An advanced course of lectures is offered in which especial attention is paid to the Gibbsian phase rule and to a non-mathematical exposition of the mass law with its application to chemical equilibrium and reaction velocity. This course aims to cover the work that has not yet appeared in the textbooks and to give a critical survey of the field of physical chemistry in general. The first laboratory course covers the more important subdivisions of the subject with a series of experiments that aim to illustrate the fundamental principles of the science. In the advanced laboratory courses the student may elect work on the mass law, reaction velocity, high temperature measurements, the study of alloys, or the application of physical chemical methods to organic chemistry. Opportunity is offered for investigation in the field of metallography and photography.

Electrochemistry

In electrochemistry a course of lectures is given in which emphasis is laid on the industrial aspects of the subject. Electrothermal processes, inorganic and organic synthesis by the electric current, electrochemical analysis and storage batteries are considered in this course. In an advanced course the theory of the voltaic



CLASS IN INTRODUCTORY INORGANIC CHEMISTRY

cell, the calculation and measurement of electromotive force, and electrochemical theories are considered in detail. Laboratory instruction in electrochemistry includes the preparation of compounds by electrochemical and electrothermal methods and a study of storage batteries.

Sanitary Chemistry and Toxicology

The laboratories devoted to sanitary chemistry and toxicology are exceptionally well equipped with the most modern apparatus both chemical and optical, and afford facilities for the microscopical study of preparations and materials obtained in the laboratory courses in food analysis. Provision is made also for research in food analysis, water analysis, water purification, and chemical bacteriology. A large collection of pure and adulterated food products supplies materials for those desiring to specialize in board-of-health work or in domestic economy.

The equipment for the study of toxicology is such as to permit of the detection and determination of the rarer as well as the common poisons of both organic and inorganic origin.

Agricultural Chemistry

An elementary course consisting of lectures, laboratory practice, and recitations, deals with the fertility of the soil, the relations of soils to plant growth, and the composition of plants and fertilizers. In the laboratory are studied the chemical and physical properties of soils and fertilizers. A series of elementary lectures is given for the winter course students. Two advanced courses are offered, one on dairy chemistry and one on the chemistry of plant and animal life.

A laboratory course in the chemical analysis of agricultural products extends throughout the year. Special attention is given to the methods of analysis recommended by the Association of Official Agricultural Chemists.

Seminary

A seminary, attended by the members of the senior class who are candidates for the degree of Bachelor of Chemistry, meets at intervals throughout the year. Members of the seminary report upon recent advances and upon selected topics in chemical science.

Research

The department possesses unusual facilities for the prosecution of experimental research in the different branches of chemical science, and every encouragement is afforded for work of this nature.

LABORATORY OF INTRODUCTORY INORGANIC CHEMISTRY

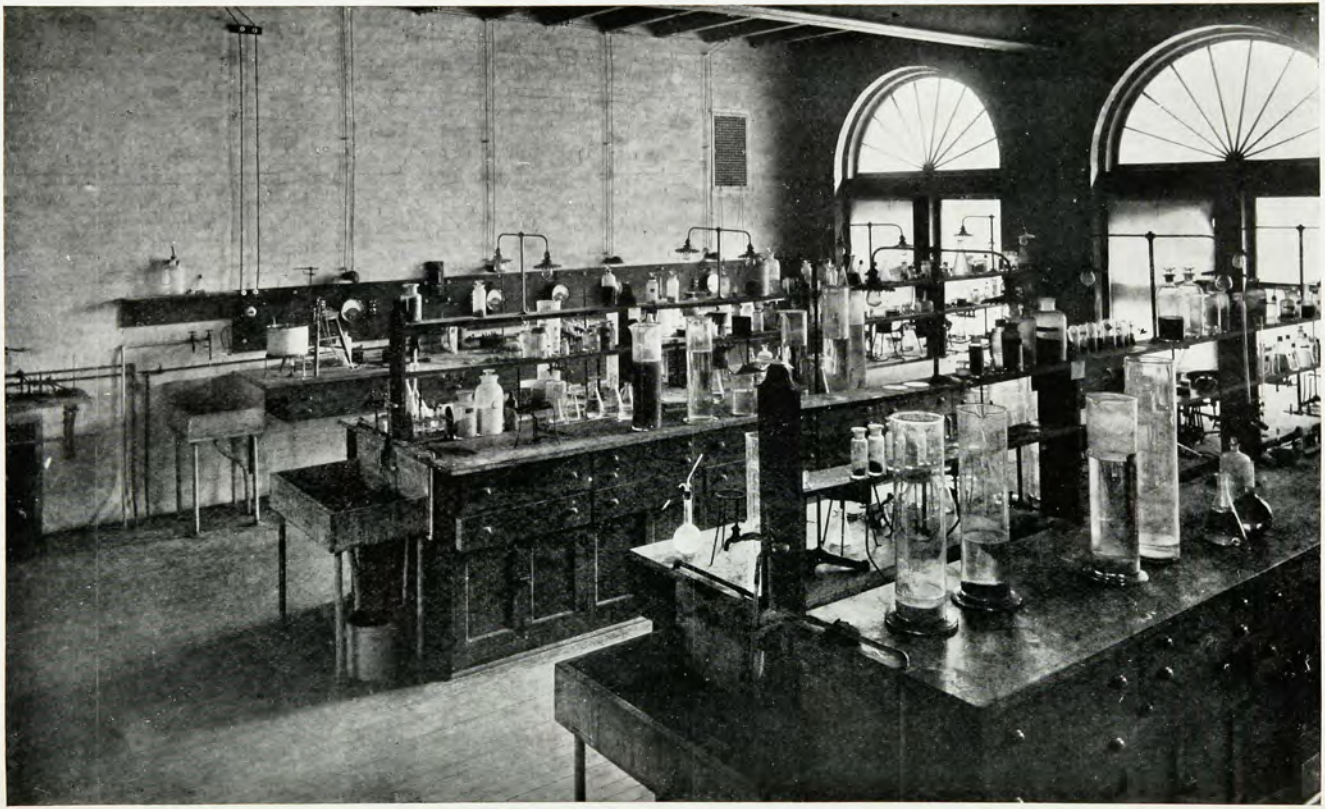
There are awarded annually to properly qualified graduate students in the Department of Chemistry a Fellowship and a Graduate Scholarship, detailed information concerning which may be found in the Announcement of the Graduate School.

Fellowship and Graduate Scholarship in Chemistry

For the information of those who may plan to apply for appointment to either the Fellowship or the Graduate Scholarship it may here be stated that it is the present policy of the Department to nominate to the Fellowship only such candidates as may be expected to complete the requirements for the degree of Doctor of Philosophy within one year, and to the Graduate Scholarship only such candidates as may be expected to complete these requirements within two years.

George Chapman Caldwell Prize

The George Chapman Caldwell prize of fifty dollars has been established by Grace Caldwell Chamberlain and Francis Cary Caldwell as a memorial to their father, George Chapman Caldwell, who was a professor in the Department of Chemistry from 1867 to 1902, and Head of the Department until 1902. This prize, accompanied by a certificate or parchment, is annually awarded by the Staff of the Department of Chemistry to a member of the senior class in recognition of general excellence in chemical work.



LABORATORY OF ADVANCED INORGANIC CHEMISTRY

COURSES OF INSTRUCTION OFFERED BY THE DEPARTMENT OF CHEMISTRY

INTRODUCTORY INORGANIC CHEMISTRY

1. **Introductory Inorganic Chemistry.** Lectures, recitations, and laboratory. Repeated in second term, credit six hours.

1a. Lectures, M W F, 11, Professor DENNIS and Mr. MCCOY; M W F, 12, Professor BROWNE and Mr. MCCOY. Morse L. R. 1.

1b. Recitations (one hour a week to be arranged). Laboratory: first term, M F, 2–4.30; T Th, 2–4.30; W, 2–4.30 and S, 8–10.30; Second term, M F, 2–4.30; T Th, 2–4.30; W, 2–4.30 and S, 8–10.30, M W, 8–10.30. Professors DENNIS and BROWNE, Dr. WELSH, and Messrs. OVERMAN, KIRK, CRAGWELL, POLLARD, SCHNEDEKER, TRESSLER, and JENKS.

Entrance credit in chemistry does not carry with it University credit in course 1. If a student entering the University from a preparatory school desires credit in course 1 he must pass an examination set by the Department of Chemistry. This examination is held both in New York City and in Ithaca on the same day in September as the entrance examination. University credit in course 1 that is obtained by passing this examination does not carry with it entrance credit in chemistry.

Examinations for those who were unavoidably absent from the final examination in course 1 will be held at 2 p. m. on the day before instruction begins in the fall.

ANALYTICAL CHEMISTRY

6. **Qualitative and Quantitative Analysis.** Repeated in second term, credit five hours. Prerequisite course 1. Dr. LEMON and Messrs. RAY, ELLEY, SMITH, MOODY, and ERSKINE. Lectures, T Th, 12. Laboratory sections: M W F, 2–5; T Th S, 8–11, T Th S, 9–12. Morse L. R. 1.

Qualitative work: the properties and reactions of the common elements and acids and their detection in various liquid and solid mixtures.

Quantitative work: the preparation and use of volumetric solutions and work in elementary gravimetric analysis.

Examinations for those who were unavoidably absent from the final examination in course 6 will be held at 2 p. m. on the day before instruction begins in the fall.

7. **Qualitative Analysis.** Repeated in second term, credit six hours. Prerequisite course 1. Dr. LEMON, and Messrs. ELLEY and SMITH. Lectures: T Th, 9, Morse L. R. 3. Laboratory: first term, M W, 2–5, S, 8–12; second term, T Th, 2–5, S, 8–12.

The properties and reactions of the common elements, and of the common inorganic and organic acids, also the qualitative analysis of a number of solutions and solid mixtures.

Students in science are advised and candidates for the degree of Bachelor of Chemistry are required to take this course instead of course 6.

9. **Advanced Qualitative Analysis.** Repeated in second term, credit one, two, or three hours. Prerequisite courses 7, 12, and 30. Dr. LEMON. Laboratory sections at hours to be arranged.

Essentially a continuation of course 7. A study of the most approved methods for separating and detecting a large number of metals and acids not studied in course 7, including many of the rare elements. In certain cases a comparative study is made of different methods designed to accomplish a given separation. The qualitative analysis of a number of solutions, solid mixtures, and minerals will be required. For graduates and advanced undergraduates.

12. **Quantitative Analysis, Elementary Course.** Repeated in second term, credit six hours. Prerequisite course 6 (or preferably 7). Assistant Professor LUNDELL and Messrs. COOLEY, KOLLER, KNAPP, and ———. Lectures, first term T Th, 9, Morse L. R. 3; second term, T Th, 8, Morse L. R. 2.

Laboratory will be open: first term, M T Th S, 9–1; M T W Th, 2–5.30; second term, same hours as course 14.

LABORATORY OF QUALITATIVE ANALYSIS

The preparation and standardization of various volumetric solutions and their use in analyzing a variety of substances; gravimetric methods.

Students in science are advised and candidates for the degree of Bachelor of Chemistry are required to take this course instead of the quantitative analysis of course 6.

14. **Quantitative Analysis, Advanced Course.** Repeated in second term. Credit one to four hours. Prerequisite course 6 (or 7 and 12). Assistant Professor LUNDELL, and Messrs. COOLEY, KOLLER, and KNAPP.

Laboratory sections: first term, M T W Th, 2–5.30; M T Th S, 9–12.30; second term, M T W Th F, 2–5; T Th S, 9–12.30. Required of candidates for the degree of Bachelor of Chemistry.

Gravimetric, volumetric, and electrolytic methods of analysis, and methods of combustion analysis; analysis of iron ores, iron and steel, special alloys, slags, paints, lubricants, coal and coke, cements and cement materials, alloys, minerals, ores of copper, lead, zinc, mercury, manganese, tin, etc.

15. **Quantitative Analysis, Advanced Lectures.** Second term, credit two hours. Prerequisite course 6 (or 7 and 12). Assistant Professor LUNDELL. M W, 10, Morse L. R. 2. Selected topics in advanced quantitative analysis.

16. **Electrochemical Analysis.** Repeated in second term, credit one to three hours. Prerequisite course 6 (or 7 and 12). Assistant Professor LUNDELL and Mr. COOLEY.

Laboratory sections: First term, T Th, 2–5.30; second term, T Th, 2–5; S, 9–12.30.

A study of the most approved electrochemical methods for the determination of silver, lead, copper, tin, nickel, cobalt, and zinc. Practice will be given in the analysis of alloys and ores.

17. **Opticochemical Methods.** Second term, credit three hours. Prerequisite course 6 (or 7 and 12); Physics 2 and 10. Assistant Professor ANDERSON and Messrs. ENGELDER and THOMPSON. Lectures, T Th, 9, Morse L. R. 3. Laboratory sections, M T W Th F, 2–5; T F, 10–1.

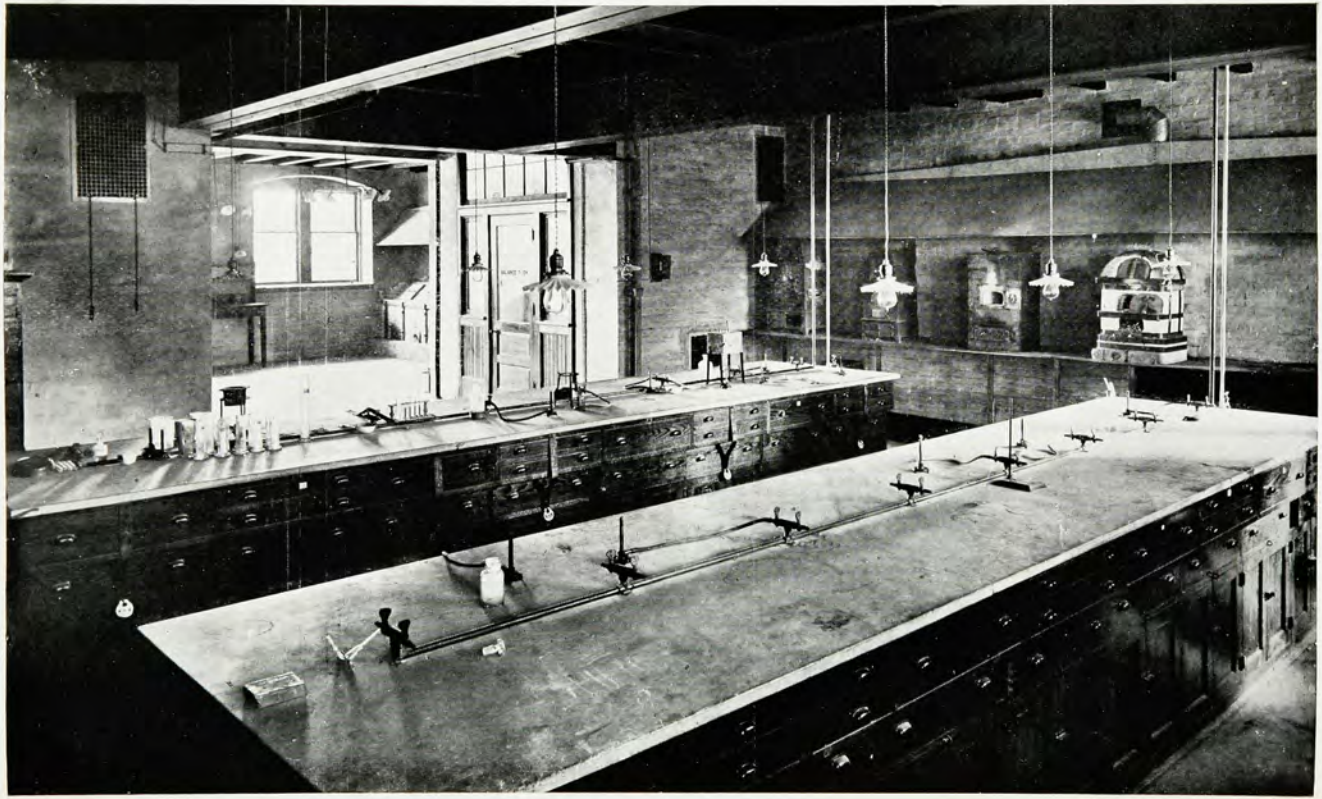
The lectures deal with the construction and with the use in chemical analysis of the spectroscope, colorimeter, polariscope, and refractometer. The laboratory instruction includes the following work: the observation and mapping of emission spectra of various elements in the Bunsen flame, the oxy-hydrogen flame, the electric arc, and the electric spark; the qualitative analysis of mixtures and minerals with the aid of the Krüss spectroscope and the direct vision spectroscope; the observation and mapping of absorption spectra; the examination and identification of rare earths and of organic dyes in solution by means of their absorption spectra; the calibration of spectroscopes; spectrum photography; and practice in the use of colorimeters, polariscopes, and refractometers of various types.

18. **Assaying.** First term, credit three hours. Prerequisite course 6 (or 7 and 12), and if possible a course in mineralogy. Assistant Professor LUNDELL, and Mr. KOLLER. Lecture F, 10, Morse L. R. 2. Laboratory, M W, 2–5.

Lectures on the theory and practice of the scorification and crucible assay, and on the metallurgy of copper, lead, zinc, silver and gold. In the laboratory, practice is given in assay of zinc, lead, copper, gold, and silver ores, mattes, and bullion. Designed for students that are specializing in chemistry and as an elective for students in mechanical and civil engineering.

19. **Qualitative and Quantitative Gas Analysis.** Lectures. Repeated second term, credit two hours. Prerequisite course 6 (or 7), and Physics 2. Assistant Professor ANDERSON. M W, 11, Morse L. R. 3.

A detailed discussion of many representative types of apparatus employed by the gas analyst and of the various methods of analysis involved in their use. Numerous simple problems are assigned which afford practice in the calculation and interpretation of the results obtained in the analyses of gases.



ASSAY LABORATORY

20. **Technical Gas Analysis.** Laboratory. Repeated second term, credit two hours. Prerequisite course 6 (or 7) and Physics 2. Open to those who are taking course 19. Assistant Professor ANDERSON, and Messrs. ENGELDER, NETZEN, and STRATTON. Laboratory sections primarily for undergraduate chemists: first term, M, 2–4.30, and Th, 10–12.30; T, 10–12.30, and 2–4.30; W, 2–4.30, and F, 10–12.30; Th, 2–4.30, and S, 8–10.30; second term, M W, 2–4.30; T Th, 9–11.30; T Th, 2–4.30; S, 8–1. Sections for other students to be arranged individually.

The analysis of gas mixtures with the apparatus of Honigmann, Bunte, Orsat, Winkler, and Hempel; the complete analysis of flue gas, illuminating gas, producer gas, acetylene, and air; the determination of the heating power of gaseous, liquid, and solid fuels, and the analysis of various substances by gas analytical methods involving the use of the different types of gas evolution apparatus such as the Scheibler calcimeter, the Hempel and the Lunge nitrometer, the Lunge gasvolumeter, and the Bodländer gasbaroscope. Within certain limits the work may be selected to suit the requirements of the individual student.

21. **Gas Analysis.** Advanced course. Repeated in second term, credit one to four hours. Prerequisite courses 1, 6, (or 7 and 12), 19, and 20; Physics 2 and 6. Assistant Professor ANDERSON. Laboratory practice at hours to be arranged. Morse. For seniors and graduate students.

Special topics in the field of either scientific or industrial gas chemistry.

ORGANIC CHEMISTRY

30. **Organic Chemistry.** Throughout the year, credit six hours a term. Prerequisite course 6 (or 7 and 12). Open to those who are taking course 12. Professor ORNDORFF, Mr. MAHOOD, and Messrs. ROSE, KENNEDY, SHERWOOD, and FREDERIKSEN. Lectures and written reviews, M W F, 9, Morse L. R. 3. Laboratory sections: M T, 1–5.30, F, 1–5.30, and S, 8–12.30. Morse 9 and 10.

The lectures and written reviews serve as an introduction to the general subject of the chemistry of the compounds of carbon. In the laboratory the student prepares a large number of typical compounds of carbon and familiarizes himself with their properties, reactions, and relations. The detection of inorganic elements in organic compounds and the recognition of various groups or radicals is included in the laboratory work.

31. **Organic Chemistry.** Throughout the year, credit three hours a term. Prerequisite course 6 (or 7 and 12). Open to those who are taking course 12. Professor ORNDORFF and Messrs. KENNEDY and SHERWOOD. M W F, 9, Morse L. R. 3. This course consists of the lectures and written reviews of course 30.

32. **Elementary Organic Chemistry.** First term, credit four hours. Prerequisite course 6 (or 7 and 12). Open to those who are taking course 12. Mr. MAHOOD and Messrs. ROSE, KENNEDY, and FREDERIKSEN. Lectures and oral and written reviews, M W F, 12, Morse L. R. 3. Laboratory, T or Th, 2–5, Morse 1.

33. **Special Chapters in Organic Chemistry.** Throughout the year, credit two hours a term. Prerequisite course 30. Professor ORNDORFF and Mr. FREDERIKSEN. T Th, 9, Morse L. R. 2.

Especial attention is given to certain important chapters of organic chemistry. An attempt is made to acquaint the student with the classical researches in organic chemistry.

34. **Advanced Organic Chemistry.** Laboratory practice. Throughout the year, credit two to six hours a term. Open to those who have had course 30 and are taking 33. Professor ORNDORFF, Mr. MAHOOD and Messrs. ROSE, KENNEDY and SHERWOOD. Hours to be arranged. The laboratory is open daily, Morse 10.

The course in the preparation of organic compounds is here continued, the preparations, however, being more difficult and requiring more experience and skill on the part of the student. The original literature is consulted, and, before

LABORATORY OF SPECTROSCOPIC CHEMICAL ANALYSIS

taking up original work in this field, the student is required to repeat some extended and important piece of work, and to compare his results with those published.

35. **The Coal Tar Dyestuffs.** First term, credit one hour. Open to those who have had course 30 and have had or are taking 33. Professor ORNDORFF. Lectures, Th, 12, Morse L. R. 3.

The methods of making the dyestuffs are discussed, also their properties, constitution, and relations to each other, the treatment being scientific rather than technical.

[36. **Stereochemistry.** Second term, credit one hour. Prerequisite course 30 or 31. Professor ORNDORFF.

The stereochemistry of the compounds of carbon and nitrogen. The necessity of considering the space relations of the atoms in certain classes of physical isomers is shown and the close agreement of the facts and theory is brought out.] Not given in 1915–16.

37. **Methods of Organic Analysis.** Throughout the year, credit two to six hours a term. Prerequisite course 30. Professor ORNDORFF and Mr. MAHOOD. Hours to be arranged. The laboratory is open daily, Morse 10.

Designed for students who desire practice in the qualitative and quantitative analysis of commercial organic products such as alcohols, ethers, organic acids, glycerin, formalin, acetates, coal tar distillates, petroleum products, soaps, acetanilid, etc.

INORGANIC CHEMISTRY

46. **Advanced Inorganic Chemistry.** Throughout the year. Credit two hours a term. Prerequisite course 30. Professors DENNIS and BROWNE, and Mr. BRIDGMAN. T Th, 11, Morse L. R. 3.

The chemical elements are discussed in the order in which they occur in the Periodic Table of Mendeléeff, and special attention is paid to the group of properties of the elements and to the relations of the groups to one another. All of the elements are given detailed consideration.

47. **Advanced Inorganic Chemistry.** Laboratory practice. Throughout the year. Prerequisite course 30. Professors DENNIS and BROWNE and Mr. BRIDGMAN. Morse 68.

The course comprises

(1) The study of methods for the preparation and purification of inorganic compounds, including those of the rarer elements.

(2) The extraction of radioactive substances and the measurement of radioactivity.

(3) The study of the various hydronitrogens and their derivatives in aqueous and nonaqueous solutions.

(4) The investigation of two-component systems from the viewpoint of inorganic chemistry.

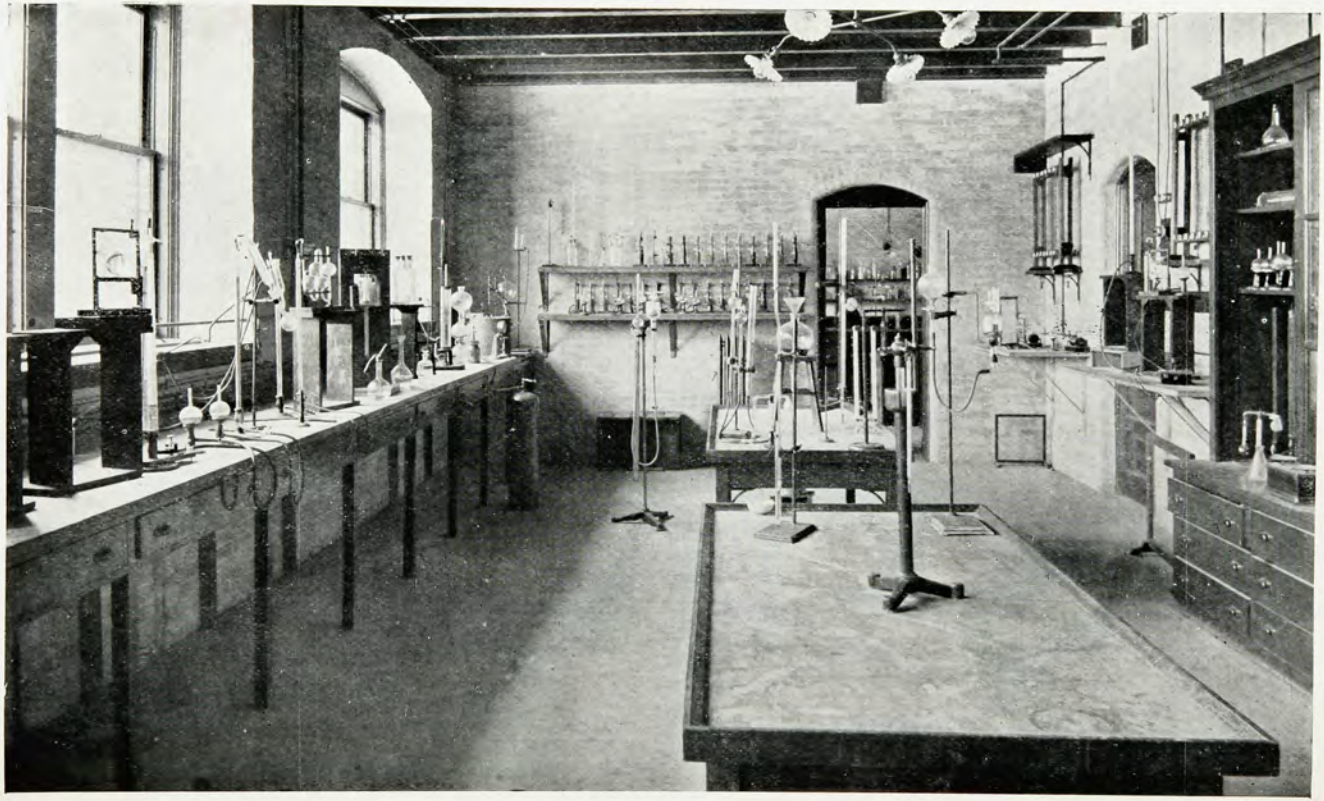
Instruction in the elements of glass-blowing is included in this course.

Course 47 is designed to accompany course 46, but either course may be taken separately.

[48. **Selected Topics in Advanced Inorganic Chemistry.** Lectures. Throughout the year, credit two hours a term. Prerequisite course 30. Courses 50 and 51 should precede or accompany this course. First term, Professor BROWNE. Second term, Dr. WELSH.

Experimental lectures, dealing in 1914–15 chiefly with (a) the chemistry of non-aqueous solutions, (b) the application of certain principles of physical chemistry, notably the phase rule, to inorganic chemistry, and (c) certain of the important recent advances in the field of inorganic chemistry.

Open to seniors and graduate students in chemistry; to others only by special permission.] Not given in 1915–16.



LABORATORY OF GAS ANALYSIS

49. **Chemistry of Gases.** First term, credit one hour. Prerequisite course 6 (or 7 and 12), and should be preceded or accompanied by 19 and 20. Assistant Professor ANDERSON. F, 11, Morse L. R. 3.

The preparation, properties, and reactions of a large number of gases are discussed and in many cases illustrated by experiments. The various generalizations concerning gases are considered, not only in the light of their scientific value, but also to some extent from the point of view of their application to the practical problems of the gas chemist and of the gas engineer. The course may be elected by juniors, seniors, and graduate students in chemistry, and is open to seniors in mechanical engineering who intend to specialize in gas power work.

PHYSICAL CHEMISTRY

50. **Introductory Physical Chemistry.** Throughout the year, credit three hours a term. Prerequisite course 30, and Physics 2, and 10. Assistant Professor BRIGGS and Messrs. BENNETT and BLUE. M W F, 9, Morse L. R. 4.

A systematic presentation of modern chemical theory. Especial attention is paid to the theory of solution, reactions, reaction velocity, catalysis, chemical equilibrium, and to the application of the principles of physical chemistry to chemical practice.

51. **Physical Chemistry Laboratory.** Throughout the year, credit three hours a term. Open only to those who have taken or are taking course 50. Assistant Professor BRIGGS and Messrs. BENNETT and BLUE. Two laboratory periods a week M T, 2–5; Th F, 2–5. Morse 77.

With the data obtained in the laboratory as a basis, detailed reports covering each sub-division are written. The subject matter includes: the calibration of pipettes, burettes, and measuring flasks; molecular weight determination by vapor density, freezing point, and boiling point methods; vapor pressure; viscosity; colloids; diffusion; absorption; thermo-chemistry; reaction velocity; catalysis; dissociation; solubility; formation, separation, and identification of phases; study of photo-chemical effects.

52. **Advanced Physical Chemistry.** Lectures. Throughout the year, credit three hours a term. Prerequisite course 50. Professor BANCROFT. M W F, 10, Morse L. R. 4.

An exposition of the law of mass action in its application to chemical equilibrium and reaction velocities.

53. **Colloid Chemistry.** Lectures. Throughout the year, credit two hours a term. Professor BANCROFT. T Th, 10, Morse L. R. 4.

The theory of colloid chemistry and its application in the arts. Open to candidates for the degree of Bachelor of Chemistry if they have taken course 50; to others only by special permission.

[55. **Theoretical Electrochemistry.** Lectures. Throughout the year, credit three hours a term. Professor BANCROFT.

The historical development of the subject with special reference to the theory of the voltaic cell. For advanced students in chemistry or physics.] Not given in 1915–16.

56a. **Applied Electrochemistry.** Lectures. Throughout the year, credit two hours a term. Prerequisite course 6 (or 7 and 12). Assistant Professor BRIGGS and Mr. MACK. M W, 12, Morse L. R. 4.

The theory of electrolysis and plating; electrolytic extraction and refining of metals; electrolytic manufacture of organic and inorganic compounds; theory and practice of storage cells; preparation of compounds in the electric furnace.

It is advisable, but not obligatory, to take 56b along with this course.

56b. **Applied Electrochemistry.** Throughout the year, credit two hours a term. Open to those who have had 50 and 51, and have taken or are taking 56a. Assistant Professor BRIGGS and Mr. MACK. Laboratory practice: T, 8–10; W, 8–11; W, 2–5; Th, 8–10. Morse 79.

Measurements of electrical constants; qualitative study of conditions affecting electrolytic reactions; quantitative relations; determination of current and energy efficiencies in electrolytic and electrothermal work; electrolytic preparation of organic and inorganic compounds; tests of storage batteries; preparation of compounds in the electric furnace; temperature measurements.

57. **Advanced Laboratory Practice.** Either term or throughout the year. Credit up to six hours a term. Prerequisite courses determined in each case by the professor in charge. Professor BANCROFT, Assistant Professor BRIGGS, and Messrs. MACK, BENNETT, and BLUE. Hours and work to be arranged. Morse.

Students may elect in mass law, reaction velocity, or efficiency measurements with special reference to course 52; in photochemistry, photography, or colloid chemistry with special reference to course 53; in conductivity or electrometric determinations with special reference to course 55; in electrolytic or electric furnace products with special reference to course 56; in metallography; in the application of physical chemical methods to organic chemistry.

CHEMICAL MICROSCOPY

65. **Microchemical Methods.** Repeated in second term, credit two hours. Prerequisite course 6 (or 7 and 12). Professor CHAMOT and Mr. COLE. Laboratory sections: W Th, 2–4.30; T Th, 10–12.30; Morse.

The use of the microscope and its accessories; microchemical methods as applied to chemical investigations.

66. **Microchemical Analysis.** Repeated in second term, credit three or more hours. Prerequisite course 65. Professor CHAMOT and Mr. COLE. Laboratory, M T, 2–4.30 and W, 10–12.30. Morse.

Practice in the examination and analysis of inorganic substances containing the more common elements with reference to rapid qualitative methods and the analysis of minute amounts of materials.

67. **Microchemical Analysis.** Repeated in second term, credit two or more hours. Prerequisite course 66. Professor CHAMOT. Laboratory practise. Morse.

This course may be arranged so as to comprise the analysis of either inorganic or organic compounds.

68. **Microscopy of Materials of Construction.** Second term, credit two hours. Prerequisite courses 50 and 65. Laboratory practice at hours to be arranged. Professor CHAMOT and Mr. COLE.

An introduction to the methods employed in microscopic examinations of metallurgical products and other opaque materials. Practice in grinding, polishing, and etching specimens, and in the use of metallographs.

SANITARY CHEMISTRY

69. **Elementary Sanitary Chemistry.** Throughout the year, credit five hours a term. Prerequisite course 6 (or 7 and 12), and course 32 (or 30, or 31). Professor CHAMOT, Dr. REDFIELD and Mr. GEORGIA. Lectures, M W, 11, Morse 89. Recitations, at hours to be assigned. The laboratory will be open T Th, 8–1, 2–5.15; W, 2–5.15.

The lectures, recitations, and laboratory practice are planned to serve as an introduction to the methods employed for the examination of water for municipal purposes; the analysis of sewage and garbage; testing of foods and beverages, for adulteration or spoilage; testing commercial disinfectants; and for detecting the presence of habit forming drugs and of common poisons. Students may elect the first term of this course independently of the second term, but the second term may not be taken save upon completion of the first term.

70. **Special Topics in Food Examination.** First term, credit two hours Prerequisite course 69. Dr. REDFIELD. Lectures, T Th, 12, Morse 89.

This course is planned to meet the needs of those specializing in sanitary chemistry and will cover in detail the more advanced problems of foods and food adulteration, including the examination of fermented, malt, and distilled alcoholic beverages.

[72. **Microscopical Examination of Foods.** First term, credit two or more hours. Prerequisite course 65. Professor CHAMOT and Mr. COLE. Laboratory at hours to be arranged. Morse.

The use of the microscope in the examination of foods and condiments for the purpose of detecting deterioration, adulterations, and admixtures.] Not given in 1915–16.

75. **Special Topics in Water Examination.** Second term, credit two hours. Prerequisite course 69. Professor CHAMOT. Lectures, T Th, 12, Morse 89.

This course is planned to meet the needs of those specializing in sanitary chemistry and will include a discussion of the natural purification or self-purification of water, modern methods of water filtration and disinfection, the method employed for the proper control of water purification plants, and the preparation of reports on water examinations.

78. **Advanced Sanitary Chemistry.** Throughout the year, credit two or more hours a term. Prerequisite course 69. Professor CHAMOT and Dr. REDFIELD. Laboratory practice at hours to be arranged. Morse.

Students may elect work in any branch of water, food, or beverage analysis, or in the fields of water purification or sewage disposal, plant control, or in the detection and determination of poisons.

[80. **Toxicology.** First term, credit two hours. Prerequisite course 30. Professor CHAMOT. Lectures, Morse 89.

A review of the present methods for the separation and identification of the common poisons together with a brief review of the classification, cause of action, and method of elimination of poisonous substances.] Not given in 1915–16.

AGRICULTURAL CHEMISTRY

85. **Agricultural Chemistry.** Repeated in second term, credit four hours. Prerequisite course 1. Professor CAVANAUGH and Messrs. RICE and FLYNN. Lectures, T Th S, 11, Morse L. R. 1. One recitation a week: first term, T, 8; F, 9: second term, M, 8; T, 10; W, 8; Th, 8; F, 8 and 9.

A general course treating of the relation of chemistry to agriculture and dealing with the composition and chemical properties of plants, soils, fertilizers, feedstuffs, insecticides, and fungicides.

85a. **Agricultural Chemistry, Laboratory Course.** Repeated in second term, credit two hours. Prerequisite courses 1, 6, 85. Professor CAVANAUGH and Mr. RICE. T Th, 2–4.30. Designed to accompany course 85.

86. **Agricultural Chemistry, Advanced Course.** First term, credit two hours. Prerequisite course 85a. Professor CROSS. Lectures, T Th, 9, Morse L. R. 4. The methods of the A. O. A. C. are studied in the analysis of fertilizers, soils, and insecticides.

87. **Agricultural Chemistry, Laboratory Course.** First term, credit three hours. Professor CROSS and Mr. RICE. T Th, 2–5, S, 9–12. Designed to accompany course 86.

88. **Agricultural Chemistry, Laboratory Course.** Second term, credit three hours. Professor CROSS and Mr. RICE. T Th, 2–5, S, 9–12. Designed to accompany course 89.

89. **Agricultural Chemistry, Advanced Course.** Second term, credit two hours. Prerequisite course 85a or 93. Professor CROSS. Lectures, T Th, 9, Morse L. R. 4. Methods of the A. O. A. C. are studied in the analysis of foods, foodstuffs, sugars, and dairy products.

LABORATORY OF ORGANIC CHEMISTRY

90. **Advanced Agricultural Analysis.** Repeated in second term. Prerequisite courses 86 and 87 (or 88 and 89). Professor CAVANAUGH, Professor CROSS. Credit and hours to be arranged. Designed to meet the needs of those who wish to do research in agricultural chemistry.

92. **Household Chemistry.** Second term, credit two hours. Prerequisite courses 1, 6, 32. Professor CAVANAUGH. Lectures, W F, 9, Morse L. R. 2. Designed for students of home economics.

93. **Household Chemistry, Laboratory Course.** Second term, credit three hours. Professor CAVANAUGH and Mr. RICE. T Th S, 8–10.30. Designed to accompany course 92.

SEMINARY

95. **Seminary.** Credit one hour. For seniors who are candidates for the degree B.Chem. Morse L. R. 3.

RESEARCH

96. **Research for Undergraduate Students.** Throughout the year. Morse. Seniors who are candidates for the degree B.Chem. are required to elect four hours a term in research under the direction of some member of the staff of instruction.

THE DEGREE OF BACHELOR OF CHEMISTRY

The requirements for the degree of Bachelor of Chemistry are residence for eight terms and the completion of the following curriculum in addition to the work prescribed by the University in military drill and physical culture.

First Year

		No. of Course	First Term	Second Term
Introductory Inorganic Chemistry	Chemistry	1	6	–
Qualitative Analysis	Chemistry	7	6 or 0	0 or 6
Analytical Geometry, Differential Calculus, Integral Calculus	Mathematics	7	5	5
Introductory Experimental Physics	Physics	2	–	5
Drawing	Sibley College	D3	3	–
English	English	1	4	4

Second Year

Quantitative Analysis	Chemistry	12	0 or 6	6 or 0
Organic Chemistry	Chemistry	30	6	6
Gas Analysis	Chemistry	19 & 20	4 or 0	0 or 4
Introductory Physical Experiments	Physics	10	2	–
Physical Experiments	Physics	14	–	2
Crystallography	Geology	12	0 or 3	3 or 0
Opticochemical Methods	Chemistry	17	–	3
Elective			–	3

Third Year

Introductory Physical Chemistry	Chemistry	50	3	3
Physical Chemistry Laboratory	Chemistry	51	3	3
Microchemical Methods	Chemistry	65	0 or 2	2 or 0
Quantitative Analysis Lectures	Chemistry	15	–	2
Advanced Quantitative Analysis	Chemistry	14	2	2
General Physics	Physics	9	2	–
Physical Experiments	Physics	14	2	–
Mechanics	Sibley College	M5	5	–
Mechanical Laboratory	Sibley College	X12	–	4
Elective				3

Students who wish to register in the junior year for a greater number of elective hours than the schedule demands may, with the consent of the Department, defer taking some of the required courses of the junior year.

Fourth Year

Electrical Engineering Laboratory	Sibley College	E 12	4	–
Seminary	Chemistry	95	–	1
Research	Chemistry	96 (at least)	4	4
Electives	at least		5	5

In choosing his elective subjects in the senior year the student is advised to select as his special field some one of the following six divisions of chemistry: inorganic chemistry, analytical chemistry, organic chemistry, physical chemistry, sanitary chemistry, or agricultural chemistry. While the greater part of the elective work should lie in the field thus chosen, the remainder may comprise courses in any division of chemistry, or such other courses as may be approved by the Department of Chemistry.

The provisions of paragraphs 3, 4, 6, 10, 11, 12, and 13 under "the Degree of Bachelor of Arts" apply in general to candidates for the degree of Bachelor of Chemistry. But a candidate for the latter degree may register for nineteen hours a term. To register for more than nineteen hours in any term he must secure the permission of the Department of Chemistry.

Candidates for the degree of Bachelor of Chemistry are advised to include among their entrance subjects, in addition to the required four units in mathematics, also three units of German and two units of French. Those who have not presented these subjects at admission will be required to take them in college, and will be expected to complete them before the beginning of the junior year.

A student that has satisfied the entrance requirements of the course leading to the degree of Bachelor of Chemistry, and has afterwards completed in two or more summer sessions of Cornell University the equivalent of at least twelve hours of the course specified in the foregoing outline, may be regarded as having thus satisfied a term of residence. Under no circumstances will work done in summer sessions be accepted as the equivalent of more than two terms. Subject to the same restrictions as apply to courses pursued in the Cornell Summer Session, courses taken in summer sessions of universities belonging to the Association of American Universities, by a student regularly registered in the College of Arts and Sciences of Cornell University or in a college of like standing may, if approved by the Department of Chemistry, be credited toward the degree of Bachelor of Chemistry.

A student admitted from a college of Cornell University or from another institution of collegiate rank to candidacy for the degree of Bachelor of Chemistry will be regarded as having completed the number of terms and the courses to which his records entitle him. But in order to obtain the degree he must have been a candidate and in residence for at least two terms in this College, and in this College only.

A student must register for at least twelve hours each term. No student may without special permission of the Department of Chemistry register for more than nineteen hours in any term.

A student registering in the College of Arts and Sciences for the first time must hand in his study card with list of courses for the term at the Dean's office on or before the third day of instruction.

Two weeks before the end of each term a student must hand in his study card with list of courses for the next term at the Dean's office.

A student may make changes in his list of courses only during the first ten days of instruction and with the approval of the Dean.

After the first ten days of the term no student shall have the right to withdraw from any course in which he is registered, unless he shall previously obtain the authorization of the Dean to withdraw from the course on the ground of ill-health or for other reason beyond the student's control.

REQUIRED COURSES TAKEN OUTSIDE OF THE DEPARTMENT BY CANDIDATES FOR THE DEGREE OF BACHELOR OF CHEMISTRY

MATHEMATICS

7. **Analytic Geometry and Calculus.** Throughout the year, credit five hours a term. Prerequisite courses 1, 2, and 3, or their equivalents.

a. **Analytic Geometry.**
b. **Differential Calculus.**
c. **Integral Calculus.**

Daily except S, 10, White.

ENGLISH

1. **Introductory Course.** Throughout the year, credit four hours a term. Students who have not taken the course in the first term may enter in the second term in sections provided for them. Open only to underclassmen who have satisfied the entrance requirement in English. Assistant Professors ADAMS and MONROE; and Drs. BAILEY, BROUGHTON, GILBERT, and JENSEN; Messrs. BALDWIN, CROWELL, TOWNLEY, HEBEL and BOULTER. Twenty-five sections at the following hours: T W Th F, 8, 9, 10, 11, 12. Rooms to be announced.

A study of representative works in English literature, including four plays of Shakespeare, four modern novels, and selected essays, and poems of Milton, Tennyson, and Browning. Practice in composition in connection with the reading, with incidental study of the principles of writing. Registration in the course is in charge of Dr. BAILEY.

Students who elect English I must apply at Goldwin Smith A on Monday or Tuesday of registration week for assignment to sections.

DRAWING (SIBLEY COLLEGE)

D. 3. **Drawing.** For students registered for the degree of Bachelor of Chemistry in the College of Arts and Sciences. First term, credit three hours. Nine hours of drawing a week. Lettering, mechanical drawing, working drawings, including conventions, standards, etc. Similar to course D. 1 but modified to suit the needs of students registered as above. Assistant Professor WILLIAMS and Mr. WATERS.

PHYSICS

2. **Introductory Experimental Physics.** Repeated in second term, credit five hours. Three lectures and two classroom periods each week. Lectures: T Th S, 9; M W F, 11, Rockefeller A: Professors NICHOLS, MERRITT, and SHEARER, and Assistant Professor GIBBS. Classroom work: Assistant Professor GIBBS, and Messrs. BUCKLEY, HOWE, MALLORY, RODGERS, SWISHER, THOMPSON, and WEEKS. Hours to be assigned. Required of candidates for B.Chem., C.E., and B.S.

Entrance physics is not accepted as an equivalent of this course.

9. **General Physics.** Theory. Repeated in second term, credit two hours. Prerequisite course 8 and the first term of 14. Instructing staff as in course 8. First term, T Th, 10; Second term, M T W Th, or W F, Rockefeller, as assigned.

Textbook work. A continuation of course 8. Current electricity, heat including thermometry, expansion, calorimetry, radiation, conduction, properties of vapors, and an introduction to the kinetic theory of gases and thermodynamics. Two hours of course 14 must be taken with course 9.

10. **Introductory Physical Experiments.** Either term or throughout the year, credit one to four hours a term. May be elected by students who are taking or have completed 2 or 3 or 6 or 7. Assistant Professor BLAKER, and

Messrs. MAYER, GIBSON, and POWER. S, 8–10.30 and 10.30–1, M T Th F, 2–4.30. Rockefeller 220–232.

A shorter course of two hours covering properties of matter, heat, light, sound, magnetism, and electricity may be taken for one term, the student electing two laboratory periods a week; or the course may be extended over a year, one period a week being taken. Longer courses of three or four hours may be elected covering the same ground as the two hour course but more in detail, the work being done in one term or distributed over two terms.

14. **Physical Experiments.** Either term or throughout the year, credit one to eight hours a term. Prerequisite courses 2 and 7, or 2 and three hours of 10, or the equivalent. May be taken by students that are taking courses 8 and 9. Assistant Professors RICHTMYER, and Messrs. BIDWELL, BROWN, GIBSON, KENNARD, KING, MAYER, PIDGEON, POWER, and ROBISON. M F S, 8–11; W, 10–1; M T Th F, 2–5. Rockefeller 250–257.

Physical measurements, properties of matter, mechanics, heat, light, sound, magnetism, and electricity; the adjustment and use of instruments of precision. Results and errors are carefully discussed. Students specializing in chemistry are required to take four hours. Other students may elect the desired number of hours.

GEOLOGY

12. **Crystallography.** Repeated in second term, credit three hours; if taken after course 11, credit two hours. Prerequisite courses Chemistry 6 or 7, Physics 2. Lectures, T Th, 8, McGraw, Geological Lecture Room; laboratory at hours to be arranged. Professor GILL and Mr. VANDER MEULEN.

The object of this course is to furnish a fundamental knowledge of the characteristics of crystallized matter as a basis for further study of crystalline substances in mineralogy, chemistry, or physics.

MECHANICS OF ENGINEERING (SIBLEY COLLEGE)

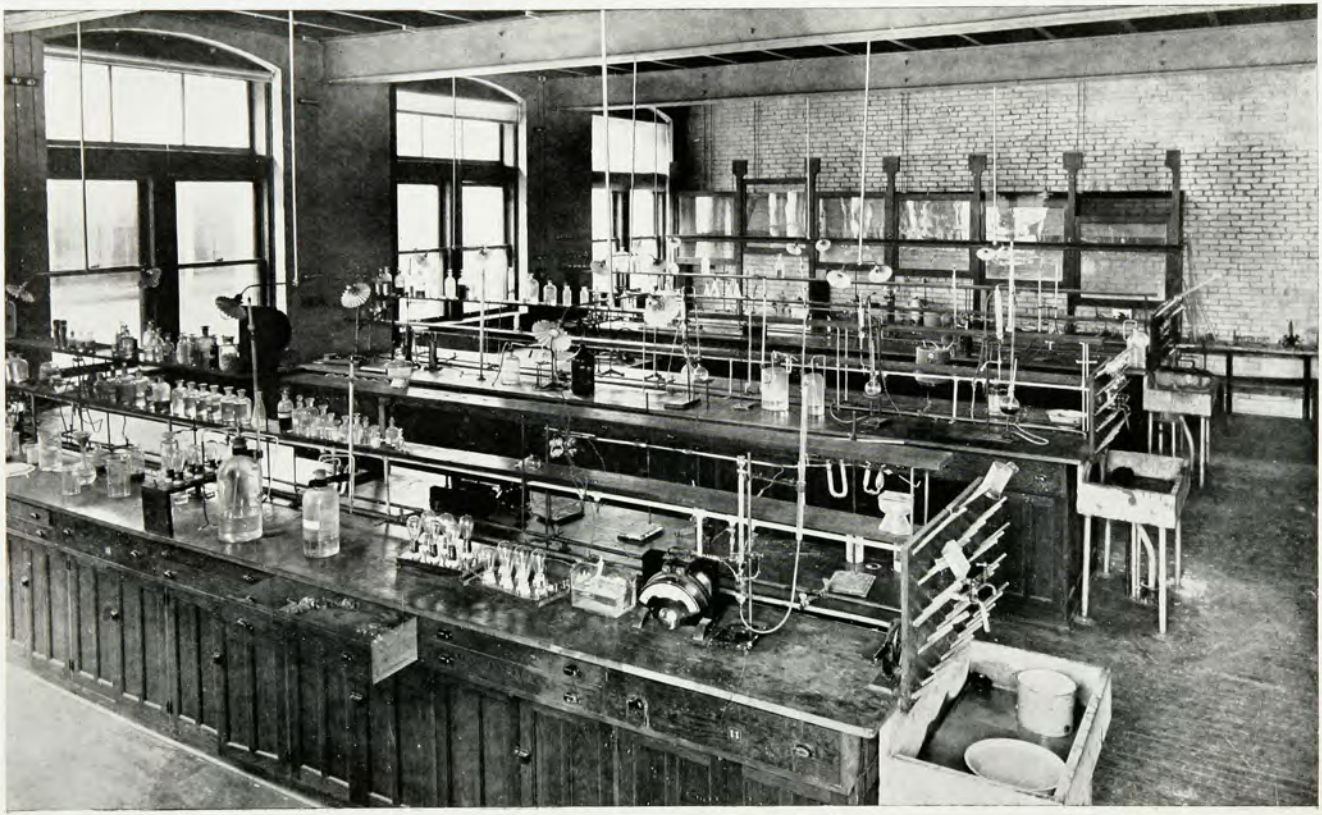
M 5. **Mechanics of Engineering.** Sophomores. First term, credit five hours. Prerequisite Mathematics 6. Theoretical and applied mechanics, including statics, kinetics, and mechanics of materials; resolution, composition, and equilibrium of forces; statics of rigid bodies, cords and structures; center of gravity and moment of inertia; composition and resolution of displacements, velocities and accelerations; Newton's laws; fundamental equations of motion; rectilinear and curvilinear motion of a particle and of rigid bodies; motion diagrams; work, energy, and power, with application to machines; impact; friction; graphical statics of structures and mechanisms; stress and strain; strength and elastic properties of materials in tension, compression, and shearing; torsion; bending moment, safe loading, deflection and resilience in simple and continuous beams; non-prismatic beams; combined bending and torsion; eccentric loading; curved bars and hooks; columns; problems showing application of principles of mechanics in engineering design. Professor WOOD, Assistant Professors GARRETT and DAUGHERTY, and Messrs. CORNELL, FRANCIS, DAY, and PARMLEY.

MECHANICAL LABORATORY (SIBLEY COLLEGE)

X. 12. **Mechanical Laboratory for Chemical Engineers.** Second term. Prerequisite M 5. One laboratory period a week. Tension and torsion test on cast iron and steel, test for hardness and toughness of steels, the use of the common engineering instruments, the properties of steam and the use of steam tables, tests on oils, tests on steam engines, the setting of valves and study of indicator cards, tests of a steam boiler, the operation and regulation of internal combustion engines, study of the methods of measuring the flow of fluids, etc. Professor DIEDERICHS, Assistant Professor GAGE and Messrs. HOOK, THOMAS, LANDT, DAVIS, and ———.

ELECTRICAL ENGINEERING LABORATORY (SIBLEY COLLEGE)

E. 12. **Electrical Engineering for Chemists.** Required of senior chemists. First term only, credit four hours. Two recitations and one laboratory experiment with report each week The purpose of this course is four-fold: (1) to review and emphasize the fundamental physical principles applied in electrical engineering; (2) to familiarize the student with electrical machinery, and to give him practice in handling it; (3) to enable the student to choose the proper type of apparatus for any particular service demanded in ordinary elementary practice; (4) to enable the student to read electrical engineering literature intelligently. Messrs. K. W. BROWN and PAGE.



LABORATORY OF PHYSICAL CHEMISTRY

COURSES IN CHEMISTRY OF GENERAL INTEREST TO STUDENTS NOT CANDIDATES FOR THE DEGREE OF BACHELOR OF CHEMISTRY

The following is a list of courses (described in detail on pages 25–37), which are required of or which may be elected by students in various colleges as indicated below. For more specific and more extended information concerning the conditions under which these or other courses in chemistry may be elected, the student should refer to the announcement of the college in which he is registered.

Chemistry 1. Introductory Inorganic Chemistry. Required of freshmen in Sibley College, in the College of Agriculture, in the College of Civil Engineering, and in the College of Veterinary Medicine. Frequently elected by students in the College of Arts and Sciences, where it fulfills the six-hour requirement in the science group (see paragraph 14, p. viii, Announcement of the College of Arts and Sciences, 1914–15).

Chemistry 6. Qualitative and Quantitative Analysis. Required of freshmen in the College of Agriculture as a prerequisite to course 85a, and of sophomores in Sibley College.

Chemistry 32. Elementary Organic Chemistry. Required of the first year students in the Medical College, and suggested as an elective for students in the College of Agriculture who are specializing in Home Economics.

Chemistry 14, 15, 19, 20, 21, 49, and 56b. Suggested as electives for Sibley students who have had the necessary preparation in chemistry.

Chemistry 75 and 78. Suggested as electives for suitably prepared students in the College of Civil Engineering and in the Medical College.

Chemistry 85. Required of freshmen in the College of Agriculture.

Chemistry 85a, 86, 87, 88, 89, 90, 92, 93. Suggested as electives for students in the College of Agriculture who have taken the prerequisite courses.

Juniors and seniors in the College of Arts and Sciences who have chosen chemistry as their group in fulfillment of the requirement mentioned in paragraph 15, p. ix, Announcement of the College of Arts and Sciences, 1914–15, usually choose their electives in chemistry in the order prescribed for students in the course leading to the degree of Bachelor of Chemistry.

LABORATORY OF ELECTROCHEMISTRY

COURSES IN CHEMISTRY OFFERED DURING THE SUMMER SESSION

The courses briefly listed below, to be given during the summer of 1915, correspond as follows with regular University courses given during the year:

A with Course 1; B with part of 48; C and E with 6; C and D with 7; E (with part of F) with 12; F with 14; FF with 16; [G with 17;] H with 19; I with 20; J and L with 30; K and M with 31; three hours of J and one hour of L with 32; N with 37; O with 34; R with 65; S with 66; T with part of 69.

The recitation and laboratory work will be arranged, within reasonable limits, to meet the individual requirements of teachers and of industrial chemists registered in the respective courses. For students wishing to obtain University credit the requirements for admission to the courses will be the same as during the regular University sessions. For teachers or industrial chemists not intending to have their work apply toward a Cornell degree these requirements will not be rigidly enforced.

Further information concerning summer work in general, or concerning the courses in chemistry may be obtained by consulting the Announcement of the Summer Session, or by corresponding with the Director of the Summer Session, Professor G. P. Bristol, Ithaca, N. Y.

A. **Introductory Inorganic Chemistry.** Credit six hours. a. Lectures, daily except S, 12, L. R. 1. Professor BROWNE and Mr McCOY. b. Laboratory work, M W, 8–12, and T Th F, 9–12. Dr. WELSH and Mr. OVERMAN. c. Recitations, T Th F, 8, Recitation Room B. Dr. WELSH.

B. **Selected Topics in Advanced Inorganic Chemistry.** Credit one hour. Lectures, M W F, 10, L. R. 4. Dr. WELSH.

C. **Qualitative Analysis.** Elementary. Credit three hours. Lectures, M W F, 11, L. R. 4. Dr. LEMON. Laboratory, except S, 1.30–4.30. Dr. LEMON and Mr. ELLEY.

D. **Qualitative Analysis.** Credit, one, two, or three hours. Lectures and recitations, T Th, 8, L. R. 2. Laboratory as arranged. Dr. LEMON and Mr. ELLEY.

E. **Quantitative Analysis.** Elementary. Credit, two hours. Lectures, T Th, 11, L. R. 4. Laboratory, M W F, 8–11. Assistant Professor LUNDELL and Mr. COOLEY.

F. **Quantitative Analysis.** Advanced. Credit, one, two, three, or four hours. Laboratory as arranged. Assistant Professor LUNDELL and Mr. COOLEY.

FF. **Electrochemical Analysis.** Credit, one, two, three, or four hours. Laboratory as arranged. Assistant Professor LUNDELL and Mr. COOLEY.

[G. **Opticochemical Methods.** Credit, three hours. Lectures, except S., 12, L. R. 3. Laboratory as arranged. Assistant Professor ANDERSON and Mr. ENGELDER.] Not given during the summer of 1915.

H. **Qualitative and Quantitative Gas Analysis.** Credit, two hours. Lectures, except S, 12, L. R. 3. Assistant Professor ANDERSON.

I. **Technical Gas Analysis.** Credit, two hours. Laboratory as arranged. Assistant Professor ANDERSON. and Mr. ENGELDER.

J. **Organic Chemistry.** Aliphatic compounds. Credit, four, five, or six hours. Lectures and recitations, except S, 8, L. R. 3. Laboratory as arranged. Professor ORNDORFF, Mr. MAHOOD, and Mr. KENNEDY.

K. **Organic Chemistry.** Aliphatic compounds. Credit, three hours. Lectures and recitations, except S, 8, L. R. 3. Professor ORNDORFF and Mr. KENNEDY.

L. **Organic Chemistry.** Aromatic compounds. Credit, one to six hours. Lectures and recitations, except S, 10, L. R. 3. Laboratory as arranged. Mr MAHOOD and Mr. KENNEDY.

M. **Organic Chemistry.** Aromatic compounds. Credit, three hours. Lectures and recitations, except S, 10, L. R. 3. Mr. MAHOOD and Mr. KENNEDY.

N. **Methods of Organic Analysis.** Credit, two or more hours. Laboratory practice, with occasional lectures, as arranged. Professor ORNDORFF and Mr. MAHOOD.

O. **Advanced Organic Chemistry.** Credit, two or more hours. Laboratory as arranged. Professor ORNDORFF, Mr. MAHOOD, and Mr. KENNEDY.

R. **Microchemical Methods.** Credit, two hours. Laboratory as arranged. Professor CHAMOT.

T. **Elementary Sanitary Chemistry.** Credit, five hours. Lectures, except S, 9, Room 89. Recitations and laboratory, as arranged. Dr. REDFIELD.

GRADUATE WORK IN CHEMISTRY

For information concerning the requirements for admission to the Graduate School, concerning the Sage Fellowship and the University Graduate Scholarship in Chemistry, or concerning graduate work in departments of instruction other than chemistry, reference should be made to the Announcement of the Graduate School, which may be obtained from the Secretary of the University.

A graduate student who desires to take either a major or a minor subject in chemistry may select any one of the following six branches: inorganic chemistry, analytical chemistry, organic chemistry, physical chemistry, sanitary chemistry, agricultural chemistry. Under the present procedure both the major subject and the one minor subject required for the degree of Master of Arts or the major subject and the two minor subjects required for the degree of Doctor of Philosophy may be selected from the six divisions mentioned above, but it is desirable that candidates for

the degree of Doctor of Philosophy select at least one minor subject outside of the Department of Chemistry.

A graduate student who desires to take a minor subject in chemistry with the major subject in some department other than that of chemistry will be required to offer introductory inorganic chemistry and elementary qualitative and quantitative analysis as preliminary to his graduate work in chemistry. The work upon his minor subject in chemistry may be taken in any branch of the subject that he is qualified to pursue.

Candidates for the degree of Master of Arts or for that of Doctor of Philosophy with the major subject in chemistry will be expected to have a reading knowledge of French and German and will be required to offer as preliminary to their graduate work in chemistry the following subjects; introductory inorganic chemistry, elementary qualitative and quantitative analysis, advanced quantitative analysis, opticochemical methods, gas analysis, elementary organic chemistry, microchemical methods, and elementary physical chemistry. Courses in these subjects, if taken in another university, should be substantially equivalent to the courses offered in this Department. Graduate students entering from other universities may take during their residence for the advanced degree such of the above courses as they have not already pursued. If a graduate student lacks at entrance several of these preliminary courses, longer residence may be necessary.

The following courses, which are described in detail in this pamphlet, may be taken in partial fulfilment of the requirements for an advanced degree: analytical chemistry, courses 9, 14, 16; organic chemistry, courses 33, 34, 35, 36, and 37; inorganic chemistry, courses 46, 47, 48, and 49; physical chemistry, courses 52, 53, 55, 56, and 57; microchemistry, courses 66 and 67; sanitary chemistry, courses 70, 71, 72, 75, 76, 80, and 81; agricultural chemistry, courses 86, 87, 88, 89, and 90.

HOLDERS OF THE SAGE FELLOWSHIP IN CHEMISTRY SINCE 1903

William Chauncey Geer, A.B.	1903–04
James Munsie Bell, B.A. (University of Toronto)	1904–05
Helen Isham, A.B.	1905–06
Frank Curry Mathers, A.B. (Indiana University), A.M. (same)	1906–07
Carl George Schleuderberg, M.E.	1907–08
Ellen S. McCarthy, A.B.	1908–09
David Shepard Pratt, A.B.	1909–10
David Shepard Pratt, A.B.	1910–11
Harold Eaton Riegger, A.B.	1911–12
Harold Eaton Riegger, A.B.	1912–13
Gail J. Fink, B.A.	1913–14
Leonard Amby Maynard, A.B. (Wesleyan University)	1914–15

HOLDERS OF THE UNIVERSITY SCHOLARSHIP IN CHEMISTRY SINCE 1903

James Munsie Bell, B.A. (University of Toronto), - - - 1903–04
Helen Isham, A.B., - - - - - - - - 1904–05
Frank Curry Mathers, A.B. (Indiana University), A.M. (same), - 1905–06
Carl George Schleuderberg, M.E., - - - - - - 1906–07
Ellen S. McCarthy, A.B., - - - - - - - 1907–08
Clarence Frederick Hale, B.S. (Wesleyan University), M.S. (same), 1908–09
James Kemp Plummer, B.S. (North Carolina A. and M. College), M.S. (same) - - - - - - - - - - 1909–10
Louisa Stone Stevenson, A.B. (Vassar), - - - - - 1910–11
Earl Frederick Farnau, A.B., A.M. (University of Cincinnati), - 1911–12
Edward Riley Allen, B.S. Ag. (Illinois), - - - - 1912–13
Leonard Amby Maynard, A.B. (Wesleyan University), - - 1913–14
Ruby Rivers Murray, A.B. (Mount Holyoke College), A.M. (same), 1914–15

RECIPIENT OF THE GEORGE CHAPMAN CALDWELL PRIZE IN CHEMISTRY

J. Allington Bridgman, - - - - - - - - 1914

ADVANCED DEGREES AWARDED SINCE 1903 TO STUDENTS TAKING THEIR MAJOR SUBJECT IN CHEMISTRY

Edward Riley Allen, B.S. Ag. (Illinois), 1906.
The Orcinolphthaleins, the Orcinoltetrachlorphthaleins and Some of Their Derivatives (Ph.D., 1913)

Herman Camp Allen, A.B. (McPherson College), 1904.
The Reduction of Nitrobenzene by Means of Ferrous Hydroxide. (Ph.D., 1912)

Ross Peter Anderson, A.B., 1908.
Researches on Tellurium (Ph.D., 1912)

James Munsie Bell, B.A. (Univ. of Toronto), 1902.
Dineric Equilibria. (Ph.D., 1905)

Charles William Bennett, B.S. (Vanderbilt), 1908; M.A. (same), 1909.
Tensile Strength of Electrolytic Copper on a Rotating Cathode. (Ph.D., 1912)

James Adrian Bizzell, B.S. (North Carolina Coll. of Ag. and Mech. Arts), 1895; M.S. (same), 1900.
Behavior of Phosphoric Acid in the Soil. (Ph.D., 1903)

John Alexander Black, A.B. (Univ. of Chicago), 1903.
Tetrachlorphenolphthalein and some of its Derivatives. (A.M., 1908)

Thomas Rowland Briggs, A.B. (Cornell), 1909.
The Electrochemical Production of Colloidal Copper. (Ph.D., 1913)

Henry John Broderson, B.A. (Nebraska) 1909; M.A. (Kansas), 1911.
Solubilities and Chemical Reactions in Anhydrous Hydrazine. (Ph.D., 1913)

Charles Owen Brown, B.S. (New Hampshire State College), 1911.
Concentration Changes in Electrolysis of Copper Sulphate using a Rotating Cathode. (A.M., 1913)

Mortimer Jay Brown, B.Sc. (Univ. of Nebraska), 1905.
Aluminum Anodes in Liquid Ammonia Solutions of Ammonium Trinitride. (Ph.D., 1911)

Arthur Wesley Browne, B.S. (Wesleyan Univ.), 1900; M.S. (same), 1901.
Contribution to the Chemistry of Hydronitric Acid and the Trinitrides. (Ph.D., 1903)

Hari Singh Chima, B.S. (Oregon Agr. Coll.), 1907.
The Microchemical Detection of Nitric Acid. (A.M., 1909)

Lewis Josephus Cross, A.B., 1909.
A Study of the Relation of the Chemical Composition of Hens' Eggs to the Vitality of the Young Chick. (Ph.D., 1912)

Albert Watson Davison, B.S. (Ohio State), 1910; M.A. (same), 1911.
Electrolytic Deposition of Brass on a Rotating Cathode. (Ph.D., 1914)

Thomas G. Delbridge, A.B. (Union Coll.), 1903.
Tetrachlorgallein and some of its Derivatives. (Ph.D., 1907)

Earl Frederick Farnau, A.B. (University of Cincinnati), 1905; A.M. (same), 1907.
Luminescence. (Ph.D., 1912)

Gail J. Fink, A.B. (Wabash), 1909.
The P. T. X. Diagrams of the Systems Ammonium Chloride-Ammonia, and Copper Sulphate-Ammonia. (Ph.D., 1914)

William Chauncey Geer, A.B., 1902.
Contributions to the Chemistry of Indium. (Ph.D., 1905)

Harvey Nicholas Gilbert, B.S. (Penna. College), 1910.
The Copper Lakes of Eosin. (Ph.D., 1915)

Horace Wadsworth Gillett, A.B., 1906.
The Carborundum Furnace. (Ph.D., 1910)

Clarence Frederick Hale, B.S. (Wesleyan Univ.), 1903; M.S. (same), 1907.
Contributions to the Chemistry of Hydrazine. (Ph.D., 1909)

Lee Fred Hawley, A.B., 1903.
Some New Compounds of Thallium. (A.M., 1905)
Contributions to the Chemistry of Thallium. II. (Ph.D., 1907)

Charles Cleveland Hedges, B.S. (Kentucky State University), 1906; A.B. (Cornell), 1908.
Some Chemical Relations of Lime-Sulphur Solutions, Lead Arsenate, and Nicotine. (Ph.D., 1912)

Arthur Romaine Hitch, A.B. (Washington Univ.), 1908; M.S. (same), 1911.
The Electrolytic and Thermal Decomposition of Some of the Inorganic Trinitrides. (Ph.D., 1913)

Emmett Francis Hitch, A.B. (Washington Univ.), 1903; A.M. (same), 1907.
Tetrachlorfluorescein and Some of its Derivatives. (Ph.D., 1912)

Major Edward Holmes, B.S. (Valparaiso Univ.), 1904; A.B. (Indiana Univ.), 1908.
On the Electrolysis of Certain Liquid Ammonia Solutions. (A.M., 1910)

Arthur Earl Houlehan, A.B. (Wabash College), 1908.
Behavior of the Hydronitrogens and their Derivatives in Liquid Ammonia. (Ph.D., 1912)

Helen Isham, A.B., 1903.
A Contribution to the Chemistry of Hydronitric Acid. (Ph.D., 1906)

Burton Judson Lemon, A.B., 1908.
The Electrolysis of Solutions of the Rare Earths. (Ph.D., 1913)

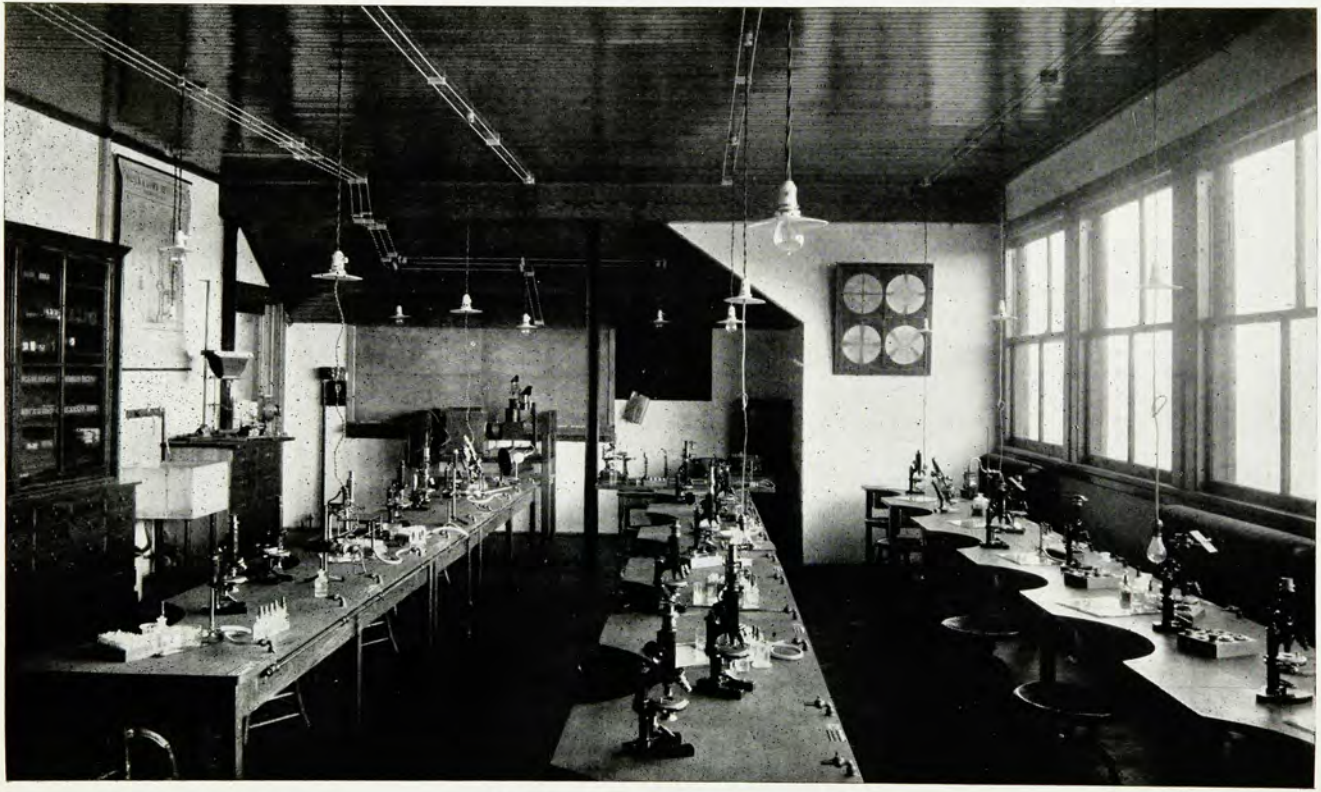
Jacob Godaleo Lipman, B.S. (Rutgers Coll.), 1898; A.M. (Cornell), 1900.
Nitrogen-Fixing Bacteria. (Ph.D., 1903)

James Martin Lohr, A.B. (Franklin and Marshall), 1908.
The Tensile Strength of the Copper Zinc Alloys. (Ph.D., 1913)

Ralph Cornelius Lowary, B.Chem., 1911.
The Composition of the Gases Produced in Carbohydrate Media of Different Compositions by Sewage and by Intestinal Organisms. (A.M., 1913)

Gustav Ernst Frederick Lundell, A.B., 1903.
Anhydrous Hydronitric Acid. (Ph.D., 1909)

Ellen S. McCarthy, A.B., 1907.
The Determination of Benzene in Illuminating Gas. (Ph.D., 1909)



LABORATORY OF MICROCHEMISTRY

John Peter Magnussen, B.A. (Gustav Adolphus Coll.), 1909; M.A. (Univ. of Minn.), 1902.
Equilibrium between Hydrogen Sulphide and Ammonia. (Ph.D., 1907)

Frank Curry Mathers, A.B. (Indiana Univ.), 1903; A.M. (same), 1905.
A Study of the Atomic Weight of Indium. (Ph.D., 1907)

Arthur Renwick Middleton, A.B. (Univ. of Rochester), 1891.
The Determination of Acetylene. (Ph.D., 1904)

Carleton Friend Miller, B.S. (Wesleyan), 1909.
Electrolysis of Certain Inorganic Salts in Liquid Ammonia. (Ph.D., 1914)

Edson Hoyt Nichols, A.B., 1908.
Octochlorindigo and Some Derivatives of Tetrachlorphthalic Acid and Tetrachloranthranilic Acid. (Ph.D., 1911)

Edward Goodin Parker, B.S. (New Hampshire Coll.), 1911.
Studies on Cellulose. (A.M., 1912)

George Arthur Perley, B.S. (New Hampshire Coll.), 1908.
Experiments on Solarization. (A.M., 1910)

James Kemp Plummer, B.S. (N. C. A. and M.), 1907; M.S. (same), 1909.
The Isolation of Dihydroxystearic Acid from Volusia Salt Loam. (A.M., 1911)

David Shepard Pratt, A.B., 1908.
A Study of the Phenol-Sulphonic Acid Method for the Determination of Nitrates in Water. (Ph.D., 1911)

Edwin Frederick Rathjen, A.B. (Univ. of Wisconsin), 1905; A.M. (same), 1906
Picrates of the Rare Earths. (Ph.D., 1910)

Burton Justice Ray, A.B. (Wake Forest Coll.), 1904.
Some Trisazo-Compounds of Resorcin. (Ph.D., 1909)

Harry Westfall Redfield, B.S., 1900.
A Study of Hydrogen Sulphide Production by Bacteria and its Significance in the Sanitary Examination of Water. (Ph.D., 1912)

Fred Hoffman Rhodes, A.B. (Wabash), 1910.
Picrates of the Rare Earths of the Didymium Group. (Ph.D., 1914)

Frank Elmore Rice, A.B. (Indiana), 1909.
Studies on the Action of Erepsin. (Ph.D., 1914)

Harold Eaton Riegger, A.B. (Cornell), 1910.
Hydronitric Acid and Hydrazine Trinitride. (Ph.D., 1913)

George Jackson Sargent, B.S. (New Hampshire Coll.), 1909.
Electorlytic Chromium. (Ph.D., 1912)

Carl George Schleuderberg, M.E., 1902.
Actinic Electrolysis. (Ph.D., 1908)

Clarence McKinley Sherwood, A.B. (Wesleyan Univ.), 1909.
A Study of Stokes' Neutral Red Reaction as Applied to the Sanitary Examination of Water. (Ph.D., 1914)

Fred Floyd Shetterly, A.B. (Indiana Univ.), 1906.
On the Oxidation of Hydrazine. (Ph.D., 1910)

Ralph Cuthbert Snowdon, A.B., 1904.
The Electrolytic Deposition of Metals. (A.M., 1906)
The Electrolytic Reduction of Nitrobenzene. (Ph.D., 1909)

Louisa Stone Stevenson, A.B. (Vassar), 1901.
The Fluorescence of Anthracene. (Ph.D., 1911)

John Edgar Teeple, B.S., 1899.
On Bilirubin, the Red Coloring Matter of the Bile. (Ph.D., 1903)

John William Turrentine, Ph.B. (Univ. of North Carolina), 1901; M.S. (same), 1902.
Contributions to the Chemistry of Hydrazine. (Ph.D., 1908)

Lawrence J. Ulrich, A.B. (Wabash), 1908.
Equilibrium in Certain Binary Systems. (Ph.D., 1913)

Harry Boyer Weiser, B.A. (Ohio State), 1911; M.A. (same), 1912.
Flame Reactions. (Ph.D., 1914)

Thomas Whitney Benson Welsh, A.B., 1908.
Electrolysis of Certain Solutions in Anhydrous Hydrazine. (Ph.D., 1913)

Frances Alice Whaley, A.B. (Univ. of Nebraska), 1912.
A New Volumetric Method for the Determination of Nickel in Steel. (M.A., 1914)

Gorrell Robert White, A.B., 1905.
The Electrolytic Corrosion of Some Metals. (Ph.D., 1910)

John Anderson Wilkinson, B.Sc. (Ohio State Univ.), 1903.
The Phosphorescence of Some Inorganic Salts. (Ph.D., 1909)

Arthur John Wilson, B.S. (N. C. A. and M.), 1907; M.S. (same), 1908.
Influence of Phosphorus in Feeds on the Phosphorus Content of the Egg, and the Chemical Character of the Phosphorus Compounds. (Ph.D., 1911)

GRADUATE STUDENTS TAKING MAJOR OR MINOR SUBJECTS IN CHEMISTRY, FIRST TERM, 1914–15

(†Not Candidates for degrees.)

Baker, Gertrude, B.A. (Western, Ohio) 1914, Middletown, Ohio
English, Inorganic Chemistry.
Committee: Sampson, Dennis. (Ph.D.)

Bee, Nai Kim, B.Chem. (Cornell) 1914, Bangkok, Siam
Agricultural Chemistry, Sanitary Chemistry.
Committee: Cavanaugh, Chamot. (A.M.)

Bennett, Harold Selden, A.B. (Cornell) 1913, Ithaca, N. Y.
Inorganic Chemistry, Physical Chemistry, Analytical Chemistry.
Committee: Browne, Bancroft, Lundell. (Ph.D.)

Bridgman, J. Allington, B.Chem. (Cornell) 1914, Ithaca, N. Y.
Inorganic Chemistry, Physical Chemistry, Sanitary Chemistry.
Committee: Dennis, Bancroft, Chamot. (Ph.D.)

Caswell, Sarah Palmer, A.B. (Wellesley) 1912, Norton, Mass.
Inorganic Chemistry, Physics, Organic Chemistry.
Committee: Dennis, Merritt, Orndorff. (Ph.D.)

Chow, Jen, M.E. (Cornell) Shanghai, China
Experimental Engineering, Analytical Chemistry.
Committee: Sawdon, Lundell. (M.M.E.)

Cole, Howard Irving, B. Chem. (Cornell) 1914 New Rochelle, N. Y.
Sanitary Chemistry, Physical Chemistry, Inorganic Chemistry.
Committee: Chamot, Bancroft, Dennis. (Ph.D.)

Conlin, Harry Joseph, A.B. (Cornell) 1913; B.Chem. (same) 1914, Glens Falls, N. Y.
Agricultural Chemistry, Sanitary Chemistry, Bacteriology.
Committee: Cavanaugh, Chamot, Stocking. (Ph.D.)

Cox, Warren Rollin, B.S. (Rose Polytechnic Institute) 1914, Terre Haute, Ind.
Electrochemistry, Electrical Engineering.
Committee: Briggs, Karapetoff. (A.M.)

Cragwall, Gordon Owen, A.B. (Wabash) 1913, Crawfordsville, Ind.
Inorganic Chemistry, Analytical Chemistry, Sanitary Chemistry.
Committee: Dennis, Lundell, Chamot. (Ph.D.)

Curtis, Otis Freeman, B.A. (Oberlin College) 1911, Ithaca, N. Y.
Botany, Plant Pathology, Physical Chemistry.
Committee: Knudson, Whetzel, Briggs. (Ph.D.)

Cusick, James Thomas, B.A. (Colgate) 1907, Owego, N. Y.
Agricultural Chemistry, Sanitary Chemistry, Bacteriology.
Committee: Cavanaugh, Chamot, Stocking. (Ph.D.)

†Darrow, Edith Mary, A.B. (Middlebury College), Chester Depot, Vt.

Davis, Merritt James, B.Chem. (Cornell) 1914, Dunkirk, N. Y.
Inorganic Chemistry, Physics, Physical Chemistry.
Committee: Dennis, Merritt, Bancroft. (Ph.D.)

Ellenberger, Howard Bowman, B.S.A. (Iowa State College) 1905, Ithaca, N. Y.
Dairy Industry, Agricultural Chemistry.
Committee: Fisk, Guthrie, Cross. (Ph.D.)

Elley, Harold Walter, B.Sc. (University of Nebraska) 1912; M.A. (same) 1913, Madison, Neb.
Inorganic Chemistry, Physical Chemistry, Economic Geology.
Committee: Browne, Briggs, Ries.

Engelder, Carl John, A.B. (Cornell) 1913; B.Chem. (same) 1914. Wellsville, N. Y.
Physical Chemistry, Inorganic Chemistry, Economic Geology.
Committee: Bancroft, Browne, Ries.

Flynn, William Francis, B.Chem. (Cornell) 1914, Johnstown, N. Y.
Agricultural Chemistry, Organic Chemistry, Physical Chemistry.
Committee: Cavanaugh, Orndorff, Bancroft. (Ph.D.)

Frederiksen, Felix Morse, A.B. (Cornell) 1914, Little Falls, N. Y.
Organic Chemistry, Physical Chemistry, Physiological Chemistry.
Committee: Orndorff, Bancroft, Sumner. (Ph.D.)

Friedman, William Frederick, B.S. (Cornell) 1914, Pittsburgh, Pa.
Plant Breeding, Botany, Organic Chemistry.
Committee: Gilbert, Knudson, Orndorff. (Ph.D.)

Goldfarb, Israel, B.S. (Cornell) 1914, New York City
Inorganic Chemistry, Physics.
Committee: Browne, Blaker. (A.M.)

Hainlin, Gretchen Lina, A.B. (Cornell) 1913, Elizabeth, N. J.
Sanitary Chemistry, Bacteriology.
Committee: Chamot, Moore. (A.M.)

Hendricks, Harold Davis, A.B. (Wabash) 1914, Jamestown, Ind.
Plant Pathology, Plant Physiology, Organic Chemistry.
Committee: Reddick, Knudson, Orndorff. (Ph.D.)

†Henry, Mary Frances, A.B. (Colorado College) 1905, University Park, Colo.

†Jenks, Leon E., B.S. (Hamilton) 1905; M.S. (same) 1908, Ithaca, N. Y.

Kennedy, John Joseph, B.Chem. (Cornell) 1913, Ithaca, N. Y.
Organic Chemistry, Analytical Chemistry, Sanitary Chemistry.
Committee: Orndorff, Lundell, Chamot. (Ph.D.)

Kirk, William, A.B. (Tarkio College) 1912; M.A. (Nebraska) 1914, Tarkio, Mo.
Inorganic Chemistry, Analytic Chemistry, Physical Chemistry.
Committee: Browne, Lundell, Briggs.

Koller, Joseph, B.Chem. (Cornell) 1912, Johnstown, N. Y.
Physical Chemistry, Organic Chemistry, Analytical Chemistry.
Committee: Bancroft, Orndorff, Lundell. (Ph.D.)

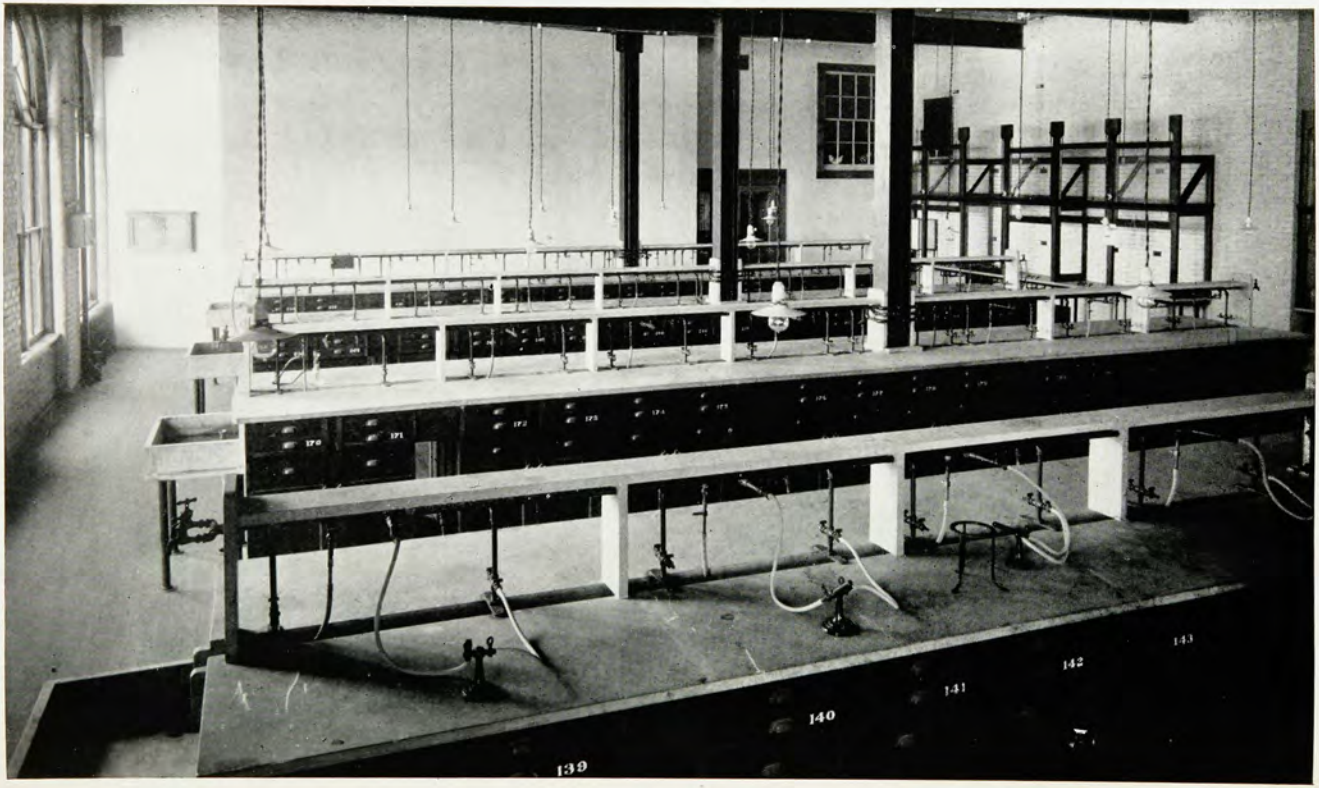
Kuo, Taun Shin, B.S. (Cornell) 1914, Wasih, China
Plant Physiology, Plant Breeding, Organic Chemistry.
Committee: Knudson, Gilbert, Orndorff. (Ph.D.)

Lauritzen, John Irvin, B.S. (Utah) 1913, Moroni, Utah
Plant Pathology, Organic Chemistry, Botany.
Committee: Reddick, Orndorff, Wiegand. (Ph.D.)

Lee, Ira Ever, A.B. (Indiana) 1911, A.M. (same) 1912, Ithaca, N. Y.
Inorganic Chemistry, Physical Chemistry, Sanitary Chemistry.
Committee: Browne, Briggs, Chamot. (Ph.D.)

†McBurney, Marguerite Mary, A.B. (Pennsylvania College for Women) 1914, Canonsburg, Pa.

Mack, Edward Laurence, B.S. (Union) 1912, Vergennes, Vt.
Inorganic Chemistry, Sanitary Chemistry, Organic Chemistry.
Committee: Browne, Chamot, Orndorff. (Ph.D.)



LABORATORY OF AGRICULTURAL CHEMISTRY

Mahood, Samuel Arthur, B.Sc. (Nebraska) 1910; M.A. (same) 1911, Columbus, Neb.
Organic Chemistry, Sanitary Chemistry, Inorganic Chemistry.
Committee: Orndorff, Chamot, Dennis. (Ph.D.)

Maynard, Leonard Amby, A.B. (Wesleyan University) 1911, Hartford, Conn.
Agricultural Chemistry, Physical Chemistry, Plant Physiology.
Committee: Cavanaugh, Bancroft, Knudson. (Ph.D.)

vander Meulen, Peter Andrew, B.Chem. (Cornell) 1913, Dunkirk, N. Y.
Inorganic Chemistry, Organic Chemistry, Mineralogy.
Committee: Dennis, Orndorff, Gill.

Moody, Warren Lafayette, B.S. (N. C. A. and M.) 1914, Charlotte, N. C.
Agricultural Chemistry, Sanitary Chemistry, Analytical Chemistry.
Committee: Cavanaugh, Chamot, Lundell. (Ph.D.)

Murray, Ruby Rivers, A.B. (Mt. Holyoke) 1912; A.M. (same) 1914, Guilford, Conn.
Organic Chemistry, Analytical Chemistry, Physical Chemistry.
Committee: Orndorff, Lundell, Bancroft. (Ph.D.)

†Norris, Olive Katherine, A.B. (Oberlin) 1906, Spencer, N. Y.

O'Brien, William James, B.Chem. (Cornell) 1911, Kingston, N. Y.
Physical Chemistry, Inorganic Chemistry, Analytical Chemistry.
Committee: Bancroft, Dennis, Lundell. (Ph.D.)

Overman, Oliver Ralph, A.B. (Indiana) 1910; A.M. (same) 1911, Windfall, Ind.
Inorganic Chemistry, Physical Chemistry, Economic Geology.
Committee: Browne, Bancroft, Ries. (Ph.D.)

Pickerill, Horace Mann, B.S. in Agr. (Cornell) 1911, Ripley, Ohio
Bacteriology, Dairy Industry, Organic Chemistry.
Committee: Stocking, Guthrie, Orndorff. (Ph.D.)

Proper, Byron Saunders, B.Chem. (Cornell) 1915, Saratoga Springs, N. Y.
Sanitary Chemistry, Bacteriology.
Committee: Chamot, Moore. (A.M.)

Ray, Arthur Benning, B.A. (Wake Forest College) 1910; M.A. (same) 1911, Leaksville, N. C.
Inorganic Chemistry, Organic Chemistry, Sanitary Chemistry.
Committee: Dennis, Orndorff, Chamot. (Ph.D.)

†Reyna, Ysidro, M.E., M.A. (Cornell) 1897, Ithaca, N. Y.

Rose, Clifford Coutant, B.Chem. (Cornell) 1912, Kingston, N. Y.
Organic Chemistry, Physical Chemistry, Analytical Chemistry.
Committee: Orndorff, Bancroft, Lundell. (Ph.D.)

Sherwood, Francis Webber, B.S. (N. C. A. and M. College) 1909; M.S. (same) 1911, Raleigh, N. C.
Organic Chemistry, Soils, Biochemistry.
Committee: Orndorff, Bizzell, Hunter. (Ph.D.)

Smith, Charles Vivian, A.B. (Wabash) 1913, Crawfordsville, Ind.
Inorganic Chemistry, Physical Chemistry, Organic Chemistry.
Committee: Browne, Bancroft, Orndorff. (Ph.D.)

Snyder, Robert Mifflin, B.S. (Michigan Agricultural College) 1914, East Lansing, Mich.
Soil Technology, Plant Physiology, Physical Chemistry.
Committee: Bizzell, Knudson, Briggs. (Ph.D.)

Thompson, James Dilley, jr., B.S. (Denison), Granville, Ohio
Economic Geology, Physical Chemistry.
Committee: Ries, Briggs. (A.M.)

Tressler, Donald Kiteley, A.B. (Michigan) 1914, Montpelier, Ohio
Agricultural Chemistry, Organic Chemistry, Bacteriology.
Committee: Cavanaugh, Orndorff, Moore. (Ph.D.)

Wilson, Benjamin Dunbar, B.S. (Kentucky) 1909; M.S. (same) 1914, Lexington, Ky.
Soil Technology, Physical Chemistry, Bacteriology.
Committee: Bizzell, Briggs, Stocking. (Ph.D.)

†Wolcott, Henry Newton, B.S. (Pomona) 1914, Tombstone, Ariz.

†Wright, Mary Evalena, B.S. (Cornell, 1914) Ithaca, N. Y.

UNDERGRADUATES REGISTERED FOR THE DEGREE OF BACHELOR OF CHEMISTRY, FIRST TERM, 1914–15

(The figures 1, 2, 3, 4, directly following the name, indicate freshman, sophomore, junior, and senior year, respectively.)

Abbott, R. D. (3) ..... Elmira, N. Y.
Alexander, J. R., jr. (1) ..... Brooklyn, N. Y.
Arnsfield, S. R. (1) ..... Johnstown, N. Y.
Ashmead, J. C. (3) ..... Richmond Hill, N. Y.
Ashwood, J. (1) ..... Gouverneur, N. Y.
Babbitt, J. S. (3) ..... New York City
Babcock, G. S. (3) ..... Northport, N. Y.
Badanes, A. (1) ..... New York City
Badenhausen, O. A. (2) ..... Stapleton, N. Y.
Ball, J. M. (3) ..... Swarthmore, Pa.
Bassett, J. W. (1) ..... Cooper Plains, N. Y.
Bateman, J. W. (3) ..... Dividing Creek, N. J.
Beach, I. T. (2) ..... Buffalo, N. Y.
Belden, D. S. (3) ..... Norwich, N. Y.
Bessho, N. (1) ..... New Haven, Conn.
Biederman, W. (3) ..... New York City
Blackburn, P. V. (1) ..... Lakewood, Ohio
Blakeman, F. F. S. (1) ..... New Hartford, N. Y.
Blue, A. A. (4) ..... Pittsburgh, Pa.
Bohall, H. A. (4) ..... Lowville, N. Y.
Brandes, G. H. (1) ..... Oswego, N. Y.
Brickman, H. K. (3) ..... Hornell, N. Y.
Broadbent, H. A. (2) ..... Utica, N. Y.
Brown, K. C. (2) ..... Hindsdale, Ill.
Browne, F. L. (2) ..... New York City
Bull, E. C. (1) ..... Ivorytown, Conn.
Burnham, W. S. (4) (A.B.) ..... Chiloway, N. Y.
Butler, W. F. (2) ..... River Edge, N. J.
Caprio, A. F. (1) ..... Newark, N. J.
Carrier, C. M. (3) ..... Troy, N. Y.
Carroll, B. H. (2) ..... Lynn, Mass.
Case, F. O. (3) ..... Chattanooga, Tenn.
Chavin, R. (3) ..... New York City
Clark, L. H. (1) ..... Brooklyn, N. Y.
Cohen, J. S. (1) ..... New York City
Colony, M. W. (1) ..... New York City
Cooke, T. T. (3) ..... Orange, N. J.
Cooley, C. S. (4) ..... Ithaca, N. Y.
Cormack, C. E. (2) ..... Silver Creek, N. Y.
Cornwell, R. T. K. (1) ..... Northumberland, Pa.
Culbertson, A. L. (3) ..... Mt. Vernon, Ohio
Dalton, J. W. (1) ..... Gouverneur, N. Y.
Dalton, W. E. (4) ..... Holyoke, Mass.
Dann, H. H. (2) ..... Ithaca, N. Y.
Davidson, P. L. (1) ..... Scranton, Pa.
Delahanty, T. W. (2) ..... New York City
Dennis, C. M. (4) ..... Ithaca, N. Y.
Dickinson, P. R. (2) ..... Bangor, N. Y.
Diefenbach, W. T. (4) ..... Utica, N. Y.
Diercks, H. C. (3) ..... Grantwood, N. J.
Dobroscky, E. D. (2) ..... Yonkers, N. Y.
Douglass, K. R. (4) ..... Northumberland, Pa.
Downing, F. B. jr. (3) ..... Woodhaven, L. I.
Dure, H. F. (3) ..... Wilmington, Del.
Ebberts, A. R. (1) ..... Pittsburgh, Pa.

Engel, L. A. (1) ..... Brooklyn, N. Y.
Fishkind, D. (4) ..... New York City
Fletcher, R. J. (2) ..... New Britain, Conn.
Freudenheim, M. E. (4) ..... Elmira, N. Y.
Friedenthal, A. L. (1) ..... Portland, Ore.
Friedlander, F. V. (1) ..... Newark, N. J.
Geibel, V. B. (1) ..... Greenwich, Conn.
Georgia, F. R. (4) ..... Scranton, Pa.
Gordon, H. (3) ..... New York City
Grant, R. J. (2) ..... Buffalo, N. Y.
Griswold, T. H. (4) ..... Warren, Ohio
Gunsel, C. (1) ..... Johnstown, N. Y.
Halley, W. F. (2) ..... Rapid City, S. D.
Halpern, M. (1) ..... Brooklyn, N. Y.
Hemphill, R. W. (1) ..... Akron, Ohio
Hock, H. W. (1) ..... Cressona, Pa.
Hood, H. P. (1) ..... Pittsburgh, Pa.
Hooker, A. H. (1) ..... Niagara Falls, N. Y.
Huang, C. H. (2) ..... Tientsin, China
Huber, H. V. (2) ..... Los Angeles, Calif.
Humphrey, H. L. (3) ..... Waterbury, Conn.
Jackson, S. D. (3) ..... Cincinnati, Ohio
Jaffin, J. M. (2) ..... New York City
James, G. M. (4) ..... Eastbourne, England
Jewett, R. W. (2) ..... Fredonia, N. Y.
Johnson, E. B. (4) ..... North Tarrytown, N. Y.
Johnston, H. R. (2) ..... Buffalo, N. Y.
Johnstone, H. R. (2) ..... N. Tonawanda, N. Y.
Kamrass, L. M. (1) ..... New York City
Kasakove, B. (1) ..... New York City
Katz, M. H. (2) ..... Brooklyn, N. Y.
Keane, L. A. (3) ..... Ithaca, N. Y.
Kennedy, H. S. (1) ..... Franklin, Pa.
Kinney, H. D. (1) ..... Gouverneur, N. Y.
Kirk, H. (4) ..... Port Jervis, N. Y.
Knapp. I. E. jr. (4) ..... Ithaca, N. Y.
Knapp, P. (2) ..... Ardmore, Pa.
Knauss, L. E. (3) ..... Poughkeepsie, N. Y.
Koch, A. D. (3) ..... Middletown, N. Y.
Kohm, J. A. (2) ..... Ithaca, N. Y.
Kovacs, F. (3) ..... Danbury, Conn.
Kraft, M. M. (3) ..... New York City
Kramer, P. H. (1) ..... Gaylord, Mich.
Kratoville, J. C. (2) ..... Riverhead, N. Y.
Lax, J. J. (4) ..... Brooklyn, N. Y.
Leavitt, M. A. (3) ..... Brooklyn, N. Y.
Lefkowitz, S. (1) ..... Brooklyn, N. Y.
Levy, F. M. (2) ..... Buffalo, N. Y.
Lincoln, D. (2) ..... Cleveland, Ohio
Lippincott, W. L. (2) ..... Hornell, N. Y.
Longwell, H. E. jr. (3) ..... Pittsburgh, Pa.
Loomis, J. H. (3) ..... Ithaca, N. Y
Ludlow, T. H. (4) ..... Fort Wadsworth, N. Y.
McCoy, D. C. (2) ..... Yonkers, N. Y.
MacDonald, N. F. (2) ..... Flushing, L. I.
McGaugh, J. D. (3) ..... Ithaca, N. Y.
McGraw, B. R. (1) ..... Cortland, N. Y.
MacKaye, W. P. (2) ..... Yonkers, N. Y.
Matakonsky, H. (1) ..... Port Chester, N. Y.
Miller, C. E. (1) ..... Lakewood, N. J.

Mills, A. C. (2) ..... Gloversville, N. Y.
Moore, L. R. (4) ..... Glen Ridge, N. J.
Moses, Miss F. (1) ..... Baltimore, Md.
Mosher, M. A. (3) ..... Hornell, N. Y.
Nagel, C. F. jr. (4) A.B ..... Newark, N. J.
Nelson, T. L. (3) ..... Binghamton, N. Y.
Netzen, C. (4) ..... Batavia, N. Y.
Newman, S. (3) ..... Brooklyn, N. Y.
Nichols, M. (1) ..... Dayton, Ohio
Norwood, J. M. (1) ..... Ithaca, N. Y.
Pashkow, M. H. (2) ..... Newark, N. J.
Perry, L. C. jr. (4) ..... Ithaca, N. Y.
Philips, D. C. (3) ..... Plainfield, N. J.
Pollard, F. H. (4) ..... Auburn, N. Y.
Prickett, T. B. (3) ..... Palmyra, N. J.
Roche, H. E. (1) ..... Ithaca, N. Y.
Rosenbaum, B. (2) ..... New Haven, Conn.
St. John, F. L. (3) ..... Brooklyn, N. Y.
Sandford, R. H. (3) ..... Bridgehampton, N. Y.
Scheetz, F. H. (3) ..... Norristown, Pa.
Schenck, H. E. (3) B.S ..... Lawndale, N. C.
Schlitz, K. W. (2) ..... Brooklyn, N. Y.
Schnedeker, W. A. (4) ..... Corona, N. Y.
Schultz, D. (1) ..... New York City
Sears, C. H. (1) ..... Holyoke, Mass.
Segall, B. I. (2) ..... Mt. Vernon, Ga.
Segnitz, P. H. (2) ..... Milwaukee, Wis.
Shannon, H. D. (4) ..... Middletown, N. Y.
Siegel, M. (4) ..... New York City
Skinner, Miss W. (1) ..... Rochester, N. Y.
Slattery, T. A. (2) ..... Troy, N. Y.
Slimm, J. B. (2) ..... Cleveland, Ohio
Smith, C. R. (4) ..... Ithaca, N. Y.
Sohon, J. A. (1) ..... New York City
Spear, R. J. (2) ..... Cleveland, Ohio
Sponable, E. I. (3) ..... Burlington Flats, N. Y.
Stanton, E. N. (3) ..... Grosse Ile, Mich.
Steacy, J. W. (1) ..... Columbia, Pa.
Stern, A. L. (2) ..... Paterson, N. J.
Stouffer, P. M. (1) ..... Mercersburg, Pa.
Stricker, P. F. (2) ..... Hamilton, Ohio
Stupp, C. G. (3) ..... Auburn, N. Y.
Sturges, F. jr. (3) ..... Elmhurst, Ill.
Summers, R. T. (2) ..... Ithaca, N. Y.
Tears, T. F. (2) ..... Starlake, N. Y.
Thompson, J. G. (4) ..... Eau Claire, Wis.
Thurston, A. M. (4) ..... Crawfordsville, Ind.
Tibbitts, J. R. (4) ..... Warsaw, N. Y.
Tinkler, L. G. (4) ..... Little Falls, N. Y.
Toll, K. H. (1) ..... Passaic, N. J.
Van Arnam, W. D. (3) ..... Buffalo, N. Y.
Van Brocklin, F. R. (3) ..... Genoa, N. Y.
Virgien, N. I. (3) ..... Yonkers, N. Y.
Waldbauer, L. (2) ..... St. Louis, Mo.
Waldron, W. R. (2) ..... New Germantown, N. J.
Ward, A. W. (2) ..... Cleveland, Ohio
Weckstein, I. (1) ..... Brooklyn, N. Y.
Weinert, F. C. (2) ..... Dunkirk, N. Y.
Weinstein, H. L. (2) ..... Dundee, N. Y.
Wendt, J. A. F. (4) ..... New York City

Wetzel, F. C. (1) ..... Harrison, N. J.
Wightman, G. E. (2) ..... Ithaca, N. Y.
Wilson, H. P. (4) ..... Clearfield, Pa.
Wilson, S. (2) ..... Brooklyn, N. Y.
Wolodarsky, E. V. (1) ..... Brooklyn, N. Y.
Yeh, Y. L. (2) ..... Hong Kong, China

TABLE SHOWING THE NUMBER OF STUDENTS REGISTERED IN THE DEPARTMENT OF CHEMISTRY SINCE 1905

		College of Agriculture		College of Arts and Sciences*		Department of Chemistry		College of Civil Engineering		Sibley College		Veterinary College		Graduates		Total	
Year	Term	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students	Registration by Courses	Individual Students
1905–06	1	84	66	364	186	...	...	61	61	295	272	15	14	90	24	909	623
	2	82	76	395	170	...	...	78	78	301	296	6	2	86	26	948	648
1906–07	1	107	98	403	265	...	...	69	69	236	225	27	27	91	54	933	738
	2	133	113	391	183	...	...	64	64	304	277	0	0	120	39	1012	676
1907–08	1	136	134	432	255	...	...	35	35	334	306	27	27	107	38	1071	795
	2	113	100	430	224	...	...	150	148	343	326	4	4	84	45	1124	847
1908–09	1	241	209	128	114	270	103	145	145	385	344	49	43	99	48	1317	1006
	2	173	146	163	141	193	80	148	140	399	360	5	5	195	57	1276	929
1909–10	1	270	180	177	151	268	108	132	105	391	320	34	34	290	67	1562	965
	2	373	304	198	160	257	94	179	168	348	335	9	8	191	89	1555	1158
1910–11	1	276	262	189	164	367	108	157	157	309	305	39	39	171	62	1508	1097
	2	373	311	199	164	319	104	155	153	355	351	3	3	131	49	1535	1135
1911–12	1	322	298	223	160	378	118	140	140	289	284	35	35	181	54	1568	1089
	2	495	444	237	161	408	116	142	142	220	219	6	6	169	56	1677	1144
1912–13	1	525	463	223	189	398	134	108	108	286	285	39	39	175	63	1754	1281
	2	545	467	268	205	387	128	117	117	236	235	3	3	171	61	1727	1216
1913–14	1	622	567	258	221	449	173	109	107	150	147	35	35	168	56	1766	1288
	2	697	655	242	163	496	171	121	120	321	314	2	2	159	53	2095	1529
Total registration by courses		5531		4920		4190		2110		5502		338		2678		25270	
Total individual students			4893		3290		1437		2057		5201		331		951		18164

*Including students from the College of Medicine up to 1910–11; not including students in the Department of Chemistry after 1907–08.

INDEX

OFFICIAL PUBLICATIONS OF CORNELL UNIVERSITY

Issued at Ithaca, New York, monthly from July to November inclusive, and semi-monthly from December to June inclusive.

[Entered as second-class matter, August 31, 1910, at the post office at Ithaca, New York, under the Act of July 16, 1894.]

These publications include

The Annual Register (for the year 1914–15, published January 15, 1915), price 50 cents.

Catalogue Number for 1913–14 (containing lists of officers and students), price 25 cents.

Book of Views, price 25 cents.

Directory of Faculty and Students, Second Term, 1914–15, price 10 cents,

and the following informational publications, any one of which will be sent gratis and post-free on request. The date of the last edition of each publication is given after the title.

General Circular of Information for Prospective Students, January 1, 1915.

Announcement of the College of Arts and Sciences, May 1, 1915.

Announcement of the Department of Chemistry, May 15, 1915.

Announcement of Sibley College of Mechanical Engineering and the Mechanic Arts, February 1, 1915.

Announcement of the College of Civil Engineering, March 1, 1915.

Announcement of the College of Law, July 1, 1914.

Announcement of the College of Architecture, May 15, 1914.

Announcement of the New York State College of Agriculture, June 1, 1914.

Announcement of the Winter Courses in the College of Agriculture, June 15, 1914.

Announcement of the Summer Term in Agriculture, April 15, 1915.

Announcement of the New York State Veterinary College, April 1, 1914.

Announcement of the Graduate School, February 15, 1915.

Announcement of the Summer Session, April 1, 1915.

Annual Report of the President, October 1, 1914.

Pamphlets on prizes, samples of entrance and scholarship examination papers, special departmental announcements, etc.

Announcement of the Medical College may be procured by writing to the Cornell University Medical College, Ithaca, N. Y.

Correspondence concerning the publications of the University should be addressed to

The Secretary of Cornell University,
Ithaca, New York